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The Oil Man's Calendar

FEB.	
12–15	**American Institute of Mining & Metallurgical Engineers, New York.**
MAR.	
14–15	**American Petroleum Institute, Mid-Continent District, Division of Production, Wichita, Kansas.**
19	**American Petroleum Institute, Pacific Coast District, Division of Production, Los Angeles.**
28–29	**American Petroleum Institute, Southwestern District, Division of Production, Houston, Texas.**
31	**Western Petroleum Refiners Association, Wichita, Kansas.**
APR.	
10–12	**American Association of Petroleum Geologists, Chicago.**
11–12	**American Petroleum Institute, Eastern District, Division of Production, Columbus, Ohio.**
18–19	**National Petroleum Association, Cleveland, Ohio.**
26–27	**Petroleum & Natural Gas Conference, State College, Pa.**
MAY	
1– 3	**Petroleum Industry Electrical Association, Dallas, Texas.**
15–17	**Natural Gasoline Association of America, Tulsa.**
18–25	**International Petroleum Exposition & Congress, Tulsa.**
27–31	**American Petroleum Institute, Mid-Year Meeting, Ft. Worth, Tex.**

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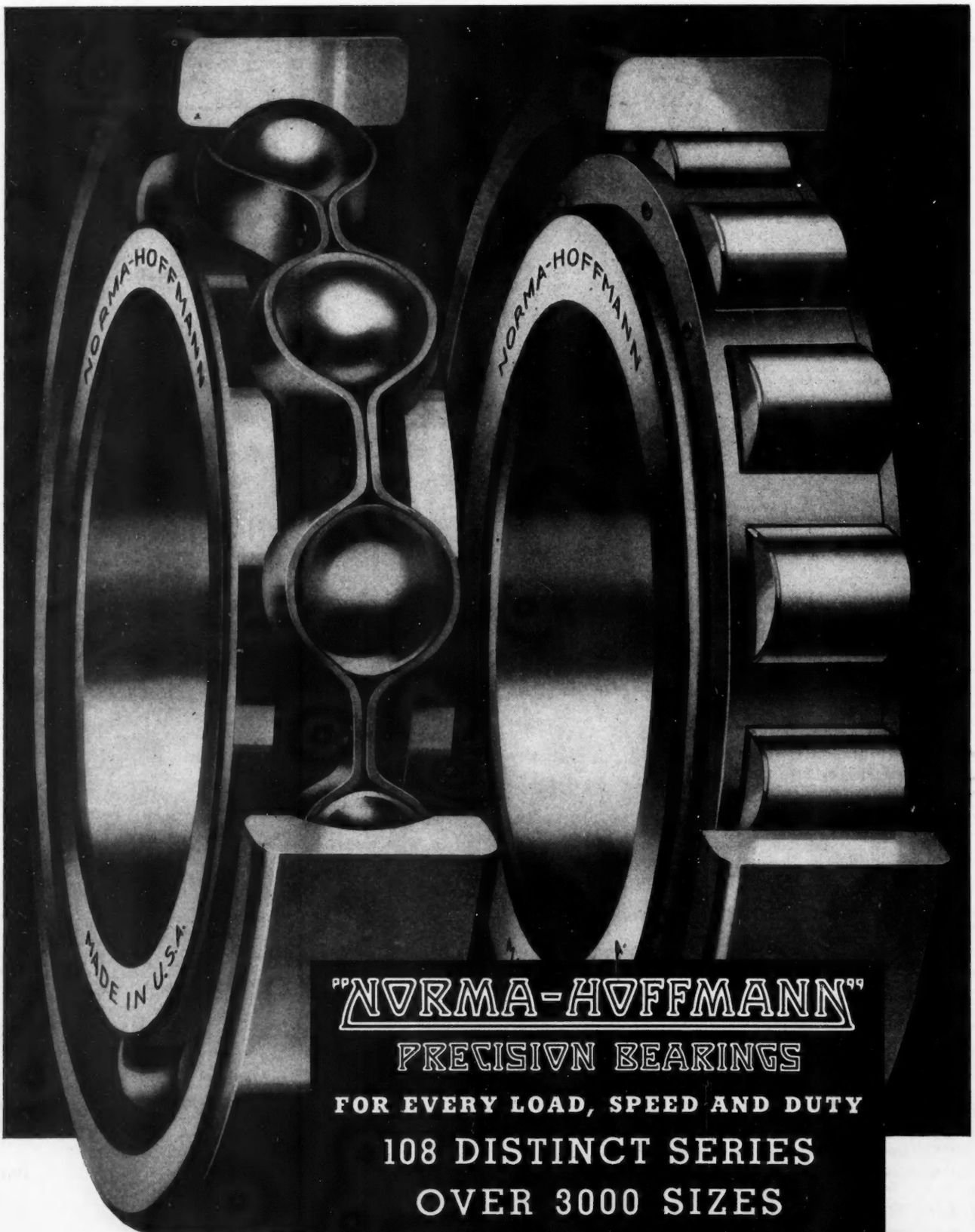

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THE OIL WEEKLY

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1939 The Changing Panorama 1940

INDICATED for the oil industry in 1940 are predominantly favorable developments, although some old and a few new problems must be faced, such as surplus gasoline stocks and the threat of adverse legislation.

The year promises to be, on the whole, more satisfactory than 1939, which was marked by gradual improvement, unusual events, such as the Mid-Continent oil field shutdowns and the outbreak of the European war, and the setting of some new records in the oil industry, including those in consumption of oils.

Earnings Outlook . . . . . .

The factors and circumstances affecting earnings indicate that oil companies will operate more profitably in 1940 than in 1939. Larger volumes of business and somewhat better prices are in prospect. The crude market is relatively more stable than the gasoline market; and consequently, particularly good results appear in store for solely producing companies and integrated companies well situated with regard to producing properties.

Surplus stocks threaten to hold the gasoline market in a depressed condition at least several months, and the refining division will be handicapped by that disadvantage. But the favorable markets for fuel oils, lubricants, aviation gasoline, and some other products will help to compensate for the unsatisfactory gasoline situation.

Record Demand . . . . . .

Inasmuch as demand for petroleum still is in the growing stage, records do not stand long. Those set in 1937 were not equaled in the recession year 1938, but they were exceeded in 1939 in all but a few instances; and the 1939 records have a short life-expectancy, as new highs in demand for practically all products are in prospect for 1940.

Stocks Reduced . . . . . .

Beneficial to the industry was the improvement in 1939 in the over-all storage situation. Stocks of all oils were reduced greatly, as heavy withdrawals were made from crude stocks, while aggregate storage of refined products showed no material change. Gasoline stocks were larger at the close of 1939 than a year previously, but inventories of practically all other products were reduced during the year.

More Pipe Lines . . . . . .

A pronounced increase in pipe line construction work was an outstanding development of 1939, and it is indicated that 1940 will be another important year in pipe line building.

Pipe lines laid in 1939 stretched for an aggregate distance of 4300 miles, not counting the numerous short lines and gathering systems, which involved substantial additional mileage. That represented more than three times the 1300 miles of line built in 1938.

At the end of 1939, work was in progress on 1220 miles of additional major pipe line construction, and plans are known to be contemplated on 3012 more miles.

Drilling Forecast . . . . . .

A survey made by this publication, embracing a study of the plans of 75 oil companies, both large and small, indicates that completions in 1940 will exceed those of 1939 by 6.5 percent. Oil wells, gas wells, and dry holes drilled in 1940 will total approximately 29,346, it is indicated, against the 1939 figure of 27,550.

Expenditures . . . . . .

As a corollary to its survey on the amount of drilling to be expected in 1940, this publication has made an estimate of the money to be spent in drilling and equipping those wells. It appears that the 29,346 wells anticipated will be drilled at a total cost close to $608,725,800. Texas will lead with $239,454,500 spent for drilling, followed by the Eastern States, where $78,677,000 will be spent.

The 15,358 wells that go on the pump in 1940 will require $25,406,650 for new equipment, and $20,499,500 for maintenance. Best pumping equipment market will be Illinois, where 2400 wells will need equipment; next, South Texas, where 1462 wells must be fitted; and East Texas, where 1355 more wells will depend on artificial lift.

Crude Reserves . . . . . .

Having maintained in 1939 a high rate of oil field discoveries, the oil industry of the United States again found more crude oil than it took from the ground. Through opening of many new producing areas, extensions of established fields, and finding of deeper pay zones, about 2,669,165,000 barrels of recoverable oil came into the picture.

That was not a net addition to the known crude reserves, of course, as the industry within the year took 1,265,261,000 barrels from the ground to meet consumption. But the excess of discovered

oil over production was the large amount of 1,403,904,000 barrels, which swelled the recoverable reserve to a new all-time peak of 18,751,050,000 barrels.

Sources of crude supply added in 1939 totaled 474, against 424 the previous year. They included 259 new fields, that compared with 264 in 1938.

To 10,000 Feet . . . . . .

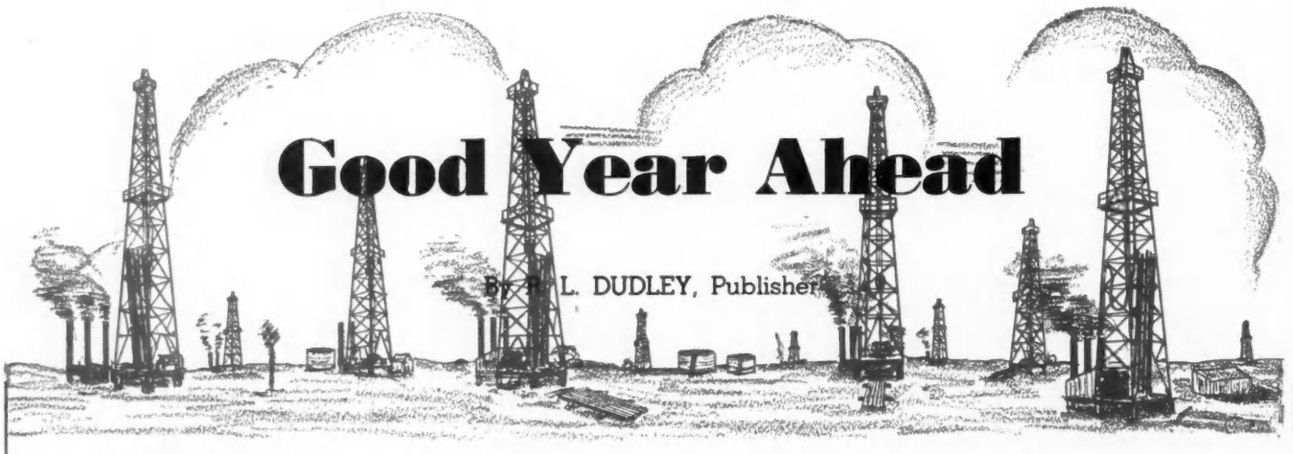
More wells were drilled to 10,000 feet or deeper in 1939 than in all previous years combined. To the 211 ultra-deep ones previously completed, 218 were added last year, and at least 250 more may be expected in 1940.

The increased drilling below 10,000 feet has been encouraged by success in discoveries. The number of fields producing from depths below 10,000 feet increased from 19 at the end of 1938 to 40 at the close of 1939.

Drilling Depths . . . . . .

The average depth of wells completed in the United States in 1939 was 3002 feet, 107 feet less than that of 1938 completions. Total footage drilled declined from 87,497,152 feet in 1938 to 82,711,156 feet in 1939.

The decrease in average depth during the past year was not evidence, however, that the trend toward a deeper typical well had been reversed. Illinois, with its heavy drilling in comparatively shallow fields, was primarily responsible for the decrease. Brisk activity in Michigan, Indiana, and West Central Texas also helped to offset the effect of deep wells in the Gulf Coast, South and West Texas, and California, where average depths were greater, but where completions were down.



Good Year Ahead

By [illegible] L. DUDLEY, Publisher

WITH a prospective increase in consumption of crude oil during 1940 which should run at least 5 percent above that of last year, the oil industry faces a year which should show considerable improvement over 1939.

One cloud on the horizon is discouraging—the prospects of too much gasoline in storage next spring. If the industry does not go into the summer with an over-supply of gasoline, the year should be a good one for the oil producers. If the industry goes into the summer with gasoline stocks of 95,000,000 barrels or more, then we may see a repetition of the conditions which obtained last summer. At the present time gasoline stock increases are the result in large part of heavy runs of fuel oil to meet an unprecedented demand coming from extraordinary cold weather in the United States. Whether gasoline stock increases can be kept in line with good business and the industry still supply the burning oil needed is a question. Certainly, we believe, more can be done than is being done along that line.

Most estimates of consumption for 1940 are based upon the European war remaining in status quo—of staying on the ground, behind the Maginot and Siegfried lines. And yet few people think that the war will be fought next summer as it has been fought to date.

It is possible that some companies are anticipating a demand from a change in the character of the war to be fought—but it would be a safer thing to allow an export demand coming from a change in warfare to reduce stocks to a better level, rather than to continue to build them in the anticipation of a situation which an early termination of the war would eliminate. Gasoline stocks should be watched closely. Last year's mistakes should be avoided. We say this despite our own feeling that it is entirely possible that the levels established by the economists as danger levels on gasoline stocks may not be accurate—may be lower than they should be.

We feel that our conclusion that 1940 should be a better year than 1939 is well borne out by the facts and figures presented in this issue of THE OIL WEEKLY. In the compilation of statistics on 1939 operations we owe our usual thanks to the numerous organizations whose statistical departments contribute annually to the industry's information. Our own statistical department is debtor to various oil companies, associations, conservation commissions, the American Petroleum Institute and the United States Bureau of Mines, all of whose figures are consulted and used in our own presentation. For our analysis of the coming year's operations we express appreciation to the more than 100 oil companies who have assisted, to the numerous engineers and superintendents, independent operators, conservation and geological bodies and special committees who have aided with information and suggestion.

Executives Express Optimistic Outlook

UNITED STATES oil consumption and production will be at all-time peak levels during 1940.

Stocks of crude and fuel oil are in a healthy condition, but gasoline inventories are excessive.

Because of the anticipated new high crude demand and low volume in storage, the crude oil price outlook is fairly good. For the same reasons, fuel oil market prospects are bright. However, excessive gasoline stocks and expected large output as refiners manufacture needed fuel oils offset the record motor fuel consumption that seems assured. Consequently, gasoline prices are likely to be no higher than at present and perhaps lower.

Earnings probably will be somewhat better, due to larger volumes of both production and consumption, and good heavy oil markets.

European wars will have comparatively little influence on the industry, because of the curtailment of civilian usage and the probability that other sources will get first call for supplying everythings but aviation gasoline and lubricants. (See separate story on this phase on page 42.)

This is the prospective stage upon which oil will play during 1940, in the opinion of major American oil company executives and a few petroleum economists surveyed as to their views by THE OIL WEEKLY.

However, these men tempered their generally optimistic opinions by enumerating several disturbing influences. Besides gasoline stocks and this commodity's rather poor outlook, which was in the vanguard in this classification, other unfavorable economic problems that confront petroleum were named as being: government interference, unlimited production in Illinois, drilling of too many wells, and probable enlarged imports.

Not all views agreed with the above, but these were by far and wide the majority of thoughts.

General Situation Fairly Good

Replies to the survey expressed considerable optimism for general prospects of the industry, largely because of indications that volumes of business would be greater and fairly good markets are probable.

All replies were 100 percent in accord that consumption of petroleum products and crude production would establish all-time peaks in 1940. While it does not necessarily follow that earnings will improve due to this score alone, when it is recalled that the American public consumed a record quantity in 1939 at a cost which amounted to nearly $90,000,000 less than it would have had to pay for an equivalent volume at 1938 prices, the majority thought chances for improvement good. This would certainly be true with higher consumption and production if markets held or gained, and the majority expressed such beliefs—except for gasoline prices. They indicated that the opportunity for higher fuel oil prices were excellent, that crude prices likely would be about the same, but that gasoline markets were questionable.

General Outlook Prospects as Viewed by Major Company Executives

(Based on percentage of replies received)

	Higher	Same	Lower	*Doubtful
Consumption	100 %	.....	.....	.....
Crude Production	100 %	.....	.....	.....
Drilling Activity	66⅔%	33⅓%	.....	.....
Earnings	64 %	9 %	.....	27 %
Prices:				
Gasoline	.....	33⅓%	33⅓%	33⅓%
Crude	25 %	75 %	.....	.....
Fuels	66⅔%	33⅓%	.....	.....

* Outlook declared obscured and in doubt because of one or more disturbing factors.

Consumption Up Five Percent

Most of the replies expected domestic consumption of petroleum products to rise from 4 to 6 percent, with the 5 percent margin favored. Several reasons were given for such anticipations.

In the first place consumption of petroleum products during 1939 rose 7 percent to a new high mark.

Secondly, there are indications that there will be about a 10 percent greater sale of motor vehicles in 1940 than in 1939, and that this should result in a larger number of cars in operation on an average over the year. Likewise, fuel and heating oils are expected to gain handsomely due to greater sales of Diesels and furnaces.

Thirdly, the general business index, while it may show a lesser rate of activity than was established in the last quarter of 1939, nevertheless is expected to have a better average this year than last; and because of that a greater consumption of gasoline per vehicle and fuel and lubricating oil per plant is anticipated.

Fourthly, to quote one opinion "I believe we are going to have a tremendous increase in tourist traffic next summer. With the war in Europe shutting off travel over there, more traveling will be done here. I wouldn't be surprised if tourist traffic next summer is 100 percent more than in the past season. And if it is, the refineries of the United States will be hard put to supply the demand for high octane gasoline."

The prediction that crude production would reach new high levels during 1940 were based on 1939's near record volume, the enlarged demand expected next year,

and the less extensive quantity in storage.

Gasoline Harms Markets

With consumption and production expected to attain new record proportions, it would seem that the industry's markets should be in excellent condition. But alas, this is not entirely true. Inability to properly control its supply-demand relationship has been one of the most vexing petroleum problems in recent years. Fortunately, executives at present see everything to be at least fairly well stabilized except gasoline.

Replies indicate that 33-1/3 percent of the executives believe gasoline prices will be able to maintain their present levels, which weakened somewhat during the latter part of the year, while another 33-1/3 percent fear they will go lower, and the remaining third are doubtful of their future course.

On the other hand 25 percent of the replies expressed the opinion that crude prices would be higher while 75 percent thought they would remain unchanged.

So far as fuel oil was concerned, two-thirds of the executives expect them to be higher and the remaining third believed they would be no lower.

Therefore, the price outlook for the industry is good except for gasoline.

In the rapid growth of demand for fuel oil, which has reduced these stocks to a low inventory position and gives this commodity a bright looking future, the oil industry has had presented to it a serious problem in refining economics: how to supply the fuel oil and still keep from making too much gasoline. The result has been that the increase in gasoline consumption has not been sufficient to prevent an unhealthy addition to stocks, which today are at an all-time peak and going higher. (This is discussed more elaborately in the section of this article devoted to the stock situation).

This condition has brought about a gradual weakening in gasoline prices which probably will extend through the first quarter of 1940.

A sharp reduction in the present high level of refinery operations would strengthen the gasoline market very quickly, but there is little likelihood that this will occur in the immediate future due to the large demand for residual fuels and light heating oils.

Offsetting this is the decided improvement in the heavy oil market. The increase in demand for residual fuels during the last quarter brought prices back to a healthy level, and the prospect for a continuation of this demand, coupled with the fact that such inventories are relatively low, indicates that further advances may be expected.

The demand for lubricating oils has been unusually brisk, and a scarcity of this material points to a maintenance of present high price levels. Along with the general upswing in other heavy oils, an improvement in the asphalt price structure is indicated.

In view of the anticipated greater consumption and production. and prospects that only the price of gasoline is in jeopardy, it would seem logical to assume earnings of the industry would be better in 1940 than during 1939; and this is just what the executives expressed in the survey.

However, at the same time they bemoaned the comparatively low level of prices, pointing out that the industry continues to supply increasingly larger volumes of increasingly higher quality products at decreasing costs to the consumer.

Gasoline Only Disturbing Stock

Executives considered the industry's stock situation as being fairly favorable, gasoline being named as the only distressing factor in this picture. While 90 percent of the replies asserted gasoline stocks were depressing, only 10 viewed them as being in good condition. On the other hand, 100 percent thought fuel oil inventories in a healthy status, and 88½ percent believed crude oil in storage at economic levels whereas 11½ percent classed it as fair.

Oil's overall stock situation would not be considered damaging, if inventories were properly distributed between crude, gasoline and heavy oils. For, while motor fuels are thought exceptionally heavy, the total volume of all oils in storage is considerably less than a year ago due to huge withdrawals of crude and fuels.

Fear Gasoline Inventories

One comment was that gasoline stocks even before March 31 "will be regulated by gasoline tankage of the country, whatever that is. By that I mean that in an effort to supply fuel oils, particularly light fuels during the winter, the industry will so overproduce gasoline as to fill all the available gasoline storage.

"The peak of gasoline stocks in the spring of 1938 was about 92,300,000 barrels, and I think that figure represented the then available gasoline storage pretty closely. If the storage capacity has been increased to 95,000,000, that will be the stocks on March 31 next, in spite of the fact that the figures indicate a statistically higher level. This amount in storage will tend to dampen the price of motor fuel."

Several declared that gasoline stocks were 8½ to 15 million barrels too high, and that refiners should immediately reduce their runs to stills.

Another declared "had refining companies conspired together as to the best plan for wrecking the industry, they could not have found a better idea."

Stock Situation as Viewed by Major Company Executives

(Based on percentage of replies received)

	Healthy	Depressing	Fair
Crude Oil.....	88½%	....	11½%
Gasoline.....	10 %	90%	.....
Fuel Oil.....	100 %	....	.....

Different Gasoline Viewpoint

However, one official painted an entirely different picture of the gasoline situation, stating:

"Stocks too high? Listen, did you know that the oil burner business has been growing at a tremendous rate during the past few years? Strange thing, it has been growing at a high rate even in those areas served by natural gas. Now we are beginning to get some fine fuel oil business as a result and the cry goes up 'look how gasoline stocks are mounting.' Sure, they're mounting, they are mounting because we are making and selling a lot of fuel oil and you can't make fuel oil without making some gaso-

line. It would be just as foolish to cry about increasing fuel oil stocks in the summer when heavy gasoline runs are being consumed by the public. It is a part of the operation. Why get excited and start crying about it when it is a necessary part of increased sales. Higher gasoline stocks right now mean increased fuel oil sales, and increased fuel oil stocks in the summer result from greater gasoline sales. Nothing strange about that.

"The recent cold spell practically scraped the bottom of the country's fuel oil tanks and not so long ago there was too much!

"It is my belief, based upon investigation, that about 50 percent of the gasoline stocks are always in a state of transportation anyway, either in tank cars, tankers or gasoline pipe lines. Seventy-five million barrels of gasoline stocks are necessary to the normal operation of the oil industry's sales division."

Fortunately for the industry, the survey indicated most of the excessive stocks of gasoline are in the hands of large companies who will not be required to dump their inventory, but the present weak condition of the gasoline market is due to heavy stocks.

Several Unfavorable Factors Listed

Five disturbing factors confronting the industry were listed by executives participating in the poll.

Gasoline stock proportions came at the head of the undesirable group, being named in 41 percent of the instances. Since views on this situation have been covered in the section of this article dealing with stocks, only the other factors named as unfavorable influences will be considered here.

Next to gasoline stocks in the unwanted class came government interference, which was mentioned by 27 percent. Overproduction in Illinois drew 18 percent; excessive drilling 9 percent, and imports 5 percent.

Government Acts Denounced

Throughout 1939 the industry was confronted with a succession of governmental investigations, proposals for the divorcement of the producing and refining divisions from the marketing divisions, proposals for the imposition of discriminatory taxes on the industry's products and facilities. The high rating of government interference in the poll expresses the thought that major oil companies executives expect this trend to be stronger during 1940.

The general opinion seemed to be that any drastic federal regulation such as has been advocated in some quarters would introduce elements of demoralization in the present efficient structure of the industry, and that all oil needs is to be let alone.

Another declared that for the solution of its production problems the industry "needs only the friendly cooperation of the government rather than its continued interference. The rules governing the conduct of business should be drawn with equal consideration of the interests of labor, capital, and the consuming public.

"Unfortunately," he continued, "any attempt on the part of the industry to apply scientific regulation of production, which could greatly increase the ultimate recovery from oil pools, is looked upon by ambitious politicians as an attempt to control prices. They forget that the refinery gasoline price has been reduced more than 40 percent over the past decade, not through government benefits which have poured billions of dollars into other industries, but through the millions spent by the oil industry for scientific research and improved equipment. In fact, the advantage to the public of reduced wholesale prices has been almost nullified by increased state and federal gasoline taxes."

The fate of the Cole control bill was considered a matter of very considerable importance, although those who expressed any views were doubtful that it would be passed. One stressed the importance of the measure because "the reception that it meets will give a pretty good idea of the general feeling and reactions of the public towards the oil industry."

Disturbing Factors Seen By Major Company Executives

(Based on percentage of replies received)

Excessive Gasoline Stocks	41%
Government Interference	27%
Illinois Over Production	18%
Excessive Drilling	9%
Increased Imports	5%

Illinois Production

Another unfavorable factor that drew comment was the production of Illinois and California, with the former named by far the majority voicing thoughts on this phase.

"As long as Illinois is without conservation laws, overproduction will undoubtedly continue as long as there is flush production," asserted one oil man.

"To force an outlet for this crude," declared one commentator, "not only were prices posted at levels below those required to meet competition from other major sources of supply, such as the Mid-Continent area, but in addition large quantities were sold at a considerable discount below the posted price.

"To avoid waste and improve the efficiency of the producing effort," he continued, "it is to be hoped that Illinois will pass a conservation law. This, together with the efforts of the conservation authorities in other oil states in preventing waste will avoid excessive production."

Excessive Drilling

"Because of the persistent decline in the allowable per well," wrote one executive, "drilling operations must be reduced. The long payout will not permit unnecessary drilling except by those companies with large cash resources and even they will, sooner or later, begin to retrench."

This reflected the opinion of those voicing comment on this subject.

Increased Imports

In listing the import situation as a troublesome element, it was pointed out that the reduction in import taxes in the Venezuela reciprocal trade agreement might mean a large increase in tax-paid imports in 1940—unless the importing companies recognize the damage that would result to the domestic petroleum industry from such action and therefore refrain from doing so.

War's Influence Not Be

IT has been asserted repeatedly that the Great Britain-France-United States-et al combination "floated to victory on a sea of oil" in World War I. And now, for the second time in 25 years, Europe finds itself in armed combat. With armies mechanized today to an extent undreamed of in 1915, petroleum is an even greater military necessity than ever before. Consequently, when war commenced last September it was generally anticipated that an enormous increase in demand would be forthcoming, and it was freely predicted that oil had been "dealt an ace in the hole," to use a poker term, that would lead it out of the woods of excess supply. It has been exceptionally disappointing that this expected huge war-time demand has failed to materialize during the first 4½ months of fighting.

Why has the expected war consumptive requirements failed to materialize? Will war-time demand result in a marked gain in exports from the United States during 1940? Just what influence will the current European wars have on the petroleum business during the new year? These are economic questions of great importance to the petroleum business at this time, and which make it particularly difficult to make an intelligent guess on what will happen in the coming 12 months.

War Influence Not Great

Presumably a long, wide-spread, and intensive conflict would enlarge the consumption of petroleum products; but to what extent is highly conjectural, and in most instances now appears to have been exaggerated greatly. Moreover, should there be an early termination of the combats the industry's upward consumptive trend would not be disturbed materially. Therefore, war's influence on oil in 1940 will not be great.

There are several reasons for the above beliefs.

While it is true that military units are mechanized as never before, and for this reason should consume larger quantities, it must be realized that conditions are different than in 1915. In the first place, production of both the United States and other countries has been increased many times in the past 25 years. Therefore, there is a much bigger supply available, much of which is awaiting only the turning of valves at wells to be produced. In the second place, refining processes have been improved to an amazing extent, and now recover twice the volume of products from a barrel of crude. Furthermore, refining capacities have been enlarged materially.

Consequently, these larger sources of supplies offset the gain in military consumption; and the proportionate influence of war-time demand may not be as great today as in 1915. Moreover, civilian usage of gasoline in both belligerent and neutral nations, which has risen enormously since 1915, is being curtailed rigidly. This saving will go a long way toward supplying the volume required for Europe's army consumption.

The preceding paragraphs express the opinions of executives of leading American petroleum companies and several economists. A survey of their views was made by THE OIL WEEKLY because oil's prospects for 1940 seemed to be so closely interwoven into the wars of Europe. These oil leaders were 100 percent in agreement that war's influence on demand had been greatly over-emphasized, and that the American industry should not count too heavily on this source for recovery. The majority felt that the effect of European wars upon the oil industry in this country during the present year would be confined mostly to increases in export demand for aviation gasoline, lubricating products, and certain grades of fuel oil. Several expressed some very interesting reasons for their opinions.

Since the first world war civilian consumption of petroleum products in Europe has increased enormously. It has been taken care of chiefly by imports, and by development of such substitute products as coal, shale, gas and alcohol fuels.

Civilian Use Curtailed

It has been known since shortly after the start of the British-French vs. German war last September that rigid limitations would be placed on the use of motor cars in all Europe, both by belligerent and neutral countries. This has reduced civilian consumption of petroleum products to exceptionally minor quantities, and a continuation of only normal demand will go a long way toward fulfilling army needs. While some survey answers asserted this saving would more than offset war demands, others were of the opinion curtailment of private usage would not be sufficient for military requirements. However, all agreed that the rigid limitations placed on civilian car use in Europe would reduce materially the demand normally to be expected from such a war.

War Demand Exaggerated

Likewise, all agreed that war-time consumption had been over-emphasized, and for the most part expressed themselves as believing American oil men would be better off to forget any possibility of procuring greatly increased demand because of the two conflicts now raging in Europe.

In a recently released statement, J. Howard Pew, president of Sun Oil Company, presented some interesting views on war-time petroleum consumption possibilities. We quote from a part of his statement:

"War paraphernalia is more mechanized than in 1914, but there

On Oil Will Great

are vastly greater supplies of petroleum to be drawn on. In 1915 the United States produced 281,000,000 barrels; in 1939 about 1,250,000,000 (1,265,000,000 barrels, according to OIL WEEKLY figures). Yet the requirements of the first World War were met from the much smaller supplies of that time with complete satisfaction. When Colonel Rutherford, an Army (United States) authority on supplies, was asked by a Congressional committee only a few weeks ago, if there was 'any difficulty in the past war to procure oil in the necessary quantity,' he replied:

"'No, sir. There was occasional difficulty in getting it to the front on account of lack of transportation, but I recall no serious difficulty with the actual supply itself.'

"The fact is," Pew's remarks continued, "that any war demand for petroleum products would be surprisingly small in comparison with our present production. The testimony of Colonel Rutherford and Rear Admiral Stuart (U. S. Navy) showed that the Navy now uses about 9,000,000 barrels of fuel oil a year, while the Army uses about 1,250,000 barrels of all oil products; requirements of the Navy, in war, might rise to 50,000,000 barrels, and the Army to 10,000,000 or 12,000,000—a total of about 4 percent of the national production.

"Popular assumptions about war-time requirements are grossly exaggerated. Three days of present national production would supply peace-time requirements for a year; two weeks production would meet a year's war-time demand as indicated by Admiral Stuart and Colonel Rutherford. Last August a shutdown of wells (in Mid-Continent states) for two weeks caused a drop in production of about 35,000,000 barrels — three times as much as peace-time military-naval requirements and about two-thirds of estimated war-time needs for a year."

U. S. Supply Greater

Any fair appraisal of the question must conclude that the United States is in a far better position to supply petroleum products than it was during World War I. Crude reserves of the nation are at an all-time peak, being approximately 500 percent larger than in 1915. And in direct contrast with 1915, vast quantities of potential crude production are being held in the ground by proration regulations, which can be procured by the slight opening of control valves on wells already drilled.

Gasoline war-time demand will not make nearly so heavy a proportionate draft on petroleum as they made 25 years ago, because present refining processes obtain about twice as much gasoline from a barrel of crude as it did then. In addition, refining capacity of the country has increased several hundred percent; and today is capable

What? "Gone With the Wind"

24 Tankers Reported Sunk in Five Months of European War

British are heaviest losers with 13 vessels sent to bottom. Neutral nations also lose through indiscriminate submarine and mine warfare. World tanker tonnage reduced 1.7 percent by losses.

*TANKER	Gross Tonnage	Agent of Destruction	Percent of Country's Total Tanker Tonnage
British:			
M.V. Africa Shell	706	Submarine	.....
M.V. Atheltemplar	8,939	Mine	.....
M.V. British Influence	8,431	Submarine	.....
M.V. British Liberty	8,485	Mine	.....
M.V. Caroni River	7,807	Unknown	.....
M.V. Cheyenne	8,825	Submarine	.....
M.V. Dosinia	†	Mine	.....
M.V. Inverlane	9,141	Submarine	.....
M.V. Inverliffey	9,456	Submarine	.....
S.S. Kennebec	5,548	Submarine	.....
M.V. James J. Maguire	†	Mine	.....
S.S. Manaar	7,242	Submarine	.....
M V. Regent Tiger	10,176	Submarine	.....
M.V. San Alberto	7,397	Submarine	.....
M.V. San Calisto	8,010	Submarine	.....
Total British	100,163	.....	3.8
Dutch:			
M.V. Sliedrecht	5,133	Submarine	1.1
French:			
Emile Miguet	14,115	Submarine	5.9

*TANKER	Gross Tonnage	Agent of Destruction	Percent of Country's Total Tanker Tonnage
German:			
M.V. Biscaya	6,369	Captured	.....
S.S. Emmy Friedrich	4,327	Scuttled	.....
Total German	10,696	.....	5.3
Norwegian:			
M.V. Arne Kjode	11,019	Submarine	.....
M.V. Britta	6,214	Submarine	.....
M.V. Deodata	8,200	Unknown	.....
M.V. Realf	8,083	Submarine	.....
Total Norwegian	33,516	.....	1.7
Panamanian:			
M.V. Phoebus	8,863	Captured	2.0
Swedish:			
M.V. Algol	978	Submarine	.....
M.V. Gustav E. Rueter	6,336	Mine	.....
Total Swedish	7,314	.....	2.1
Total World	179,800	.....	‡1.7

* M.V. indicates Motor Vessel; S.S. indicates Steam Ship.
† Reached safe anchorage; not included in totals of tonnage sunk.
‡ Calculated from world total gross tanker tonnage given in "Facts and Figures," Sixth Edition.

of manufacturing considerably in excess of domestic gasoline requirements.

Sources of Supply Different

Moreover, the outlook for sources of supplies is quite different from what it was in 1914 and 1915. Production outside of the United States has increased in ratio to the gain in the U. S. Many new countries have been added to the list of producing areas, creating considerable shifting in nationality of ownership of the world's oil; and this expansion of nationalities presents an entirely different setup than 25 years ago, particularly with respect to Great Britain and France.

Due to experience in World War I it is known that the present conflict will be exceptionally costly. Therefore, Great Britain and France are doing everything possible to make it cost as little as necessary. And to that end, and for other natural reasons, they will try to get as much of their oil from their own sources.

It is only natural to presume that as long as the Mediterranean Sea and Suez Canal are open to free travel (which will be as long as Italy remains neutral), that Great Britain and France will draw their petroleum supplies as far as possible from their holdings in Iraq and Persia; and, of course, take as much from Roumania as they can, if for no other reason than to keep it from getting into German hands.

Also, under certain conditions Great Britain and France might prefer to import oil from Venezuela and other South American countries, where they have holdings. This probably would be their second choice of supply sources.

After that, they would come to the United States for other motor fuel requirements, and particularly for aviation gasoline due to this country's greater refining capacity for this type of product. And for the same refining capacity reason, they probably will continue to call on United States refiners for lubricating oils and fuel oils.

One economist who expressed himself fully declared, "I am not sharing the opinion that I have heard expressed somewhat earlier that we (the United States) are going to sell tremendous quantities of petroleum and products to the warring countries."

One executive asserted "the war will bring no critical nor even difficult situation as to petroleum supplies."

Another felt demand would be less than normal due to limitations placed on use of cars in all Europe, and he stated "European demand from the United States probably will not exceed 35 for all purposes—war and domestic uses." However, one of the other officials expressed himself in this way: "If war activities assume major proportions in 1940, the oil industry undoubtedly will be temporarily greatly benefitted. However, a continued over-emphasis on war demand, with its resulting overproduction might interrupt the normal upturn anticipated from increased domestic activity. I am by no means as discouraged as some appear to be, and do feel that if the situation breaks loose in Europe that we are going to have considerable demand regardless of potential supplies from other sections."

Another executive expressed himself thusly: "I don't think an early termination of the war would help the oil situation. We have had a material increase in demand for bright stocks as a result of it." When queried on the possibility of exports of petroleum products going down, this same party stated "Maybe so, but we have at least made something on what we have shipped."

Still another thought "an early termination of the war would slow down business generally in this country, thereby reducing consumption of petroleum products and export business might also suffer a decline."

Conclusion

A study of the views of the executives and economists who answered the survey leads to the following conclusions:

(1) Despite the more highly mechanized armies of today, the proportionate influence of the current war on oil demand will be less than in 1915, because of (a) the greatly increased producing and refining capacities which are in excess of normal requirements, and (b) advanced refinery processes

[*Continued on page 82*]

Record Demand for Oil Is In Prospect for 1940

By L. J. LOGAN, Associate Editor

DEMAND for United States petroleum almost certainly will set a new all-time record in 1940, after having risen in 1939 to the highest level ever reached up to now.

The further increase is indicated by prospective additional gains in demand for practically all products, including gasoline, heating oils, residual fuels, lubricants, and asphalt.

The expectations of larger demand are based primarily on the outlook for domestic conditions, which promise to be better in 1940 than in 1939.

The export outlook is clouded and uncertain, because of the wars in Europe; and expectations of foreign business currently are conservative, although exports are expected to compare favorably with those in 1939.

Business Outlook Good

Economists are anticipating a further expansion of 5 to 10 percent in general industrial and business activity this year, which would make 1940 as busy as 1937 and nearly as busy as the banner year 1929. The Federal Reserve Board index of industrial production averaged about 105 percent of the 1923-1925 level in 1938, as in 1936; and it is expected to average about 110 in 1940, as in 1937. The average for 1929 was 119.

If these optimistic expectations are fulfilled, increased volumes of business for the oil industry will be virtually assured. For the demand for petroleum still is growing, and only particularly adverse economic conditions interrupt the upward trend.

The estimates of demand which are offered in the accompanying chart are based on the assumption that exports of automotive gasoline and fuel oils will be about the same in 1940 as in 1939, and on calculations that domestic consumption will show increases about as follows:

Product—	Estimated Gain in Domestic Demand in 1940
Gasoline	4%
Residual Fuel Oil	5%
Gas Oil and Distillate Fuel	10%
All Oils	5%

These estimates for the principal refined products take into consideration the chief factors affecting demand, and the indicated over-all increase of 5 percent for all oils is based on the data for the products.

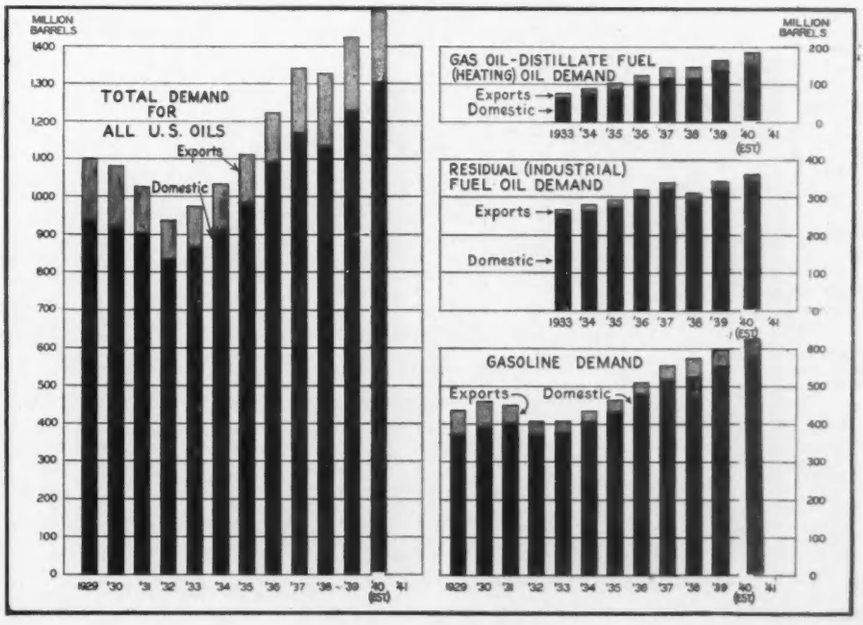
Estimates Conservative

The figures are offered with considerable assurance, and with the opinion that they are conservative, as they fall within the middle ground among estimates that have been made by various oil

New Highs in Consumption of Oils in Prospect for 1940, Following Gains to Record Levels in 1939

Total demand for United States petroleum broke all previous records in 1939, but further gain is in prospect for 1940. New all-time peaks likely will be reached in demand for both light and heavy fuel oils as well as gasoline.

Chart based on Bureau of Mines data for 1929-1939 and estimates for 1940


MILLION BARRELS
TOTAL DEMAND FOR ALL U.S. OILS
Exports
Domestic
1929 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 '40 (EST) '41
GAS OIL-DISTILLATE FUEL (HEATING) OIL DEMAND
RESIDUAL (INDUSTRIAL) FUEL OIL DEMAND
GASOLINE DEMAND
1933 '34 '35 '36 '37 '38 '39 '40 (EST) '41

company executives and petroleum economists.

An increase of at least 4 percent in gasoline demand is indicated by the promising automotive outlook. Automobile manufacturers expect to make and sell 10 to 15 percent more new cars and trucks in 1940 than in 1939, after having turned out 40 percent more vehicles in 1939 than in 1938. Consequently, a further net gain in automobile registrations is in prospect in 1940, following the setting of new records in 1939. Furthermore, in view of the promising business outlook, 1940 may be expected to bring a continuation of the usual increase in annual consumption of gasoline per vehicle.

Domestic demand for gasoline was about 5.7 percent larger in 1939 than in 1938, and some forecasters expect a similar gain in 1940; although others, feeling that it is too optimistic to anticipate so great an increase over the record-breaking 1939 consumption, have made estimates that range as low as an increase of only 3 percent.

New Records Established in 1939 in Demand for Petroleum Products

Total demand was 6.9 percent greater in the first 11 months of 1939 than in similar period of 1938. Exports of crude were smaller, but those of refined products were larger, and domestic consumption showed an increase of 8.3 percent. Fuel oils and lubricants were in particularly strong demand, but gains were shown also for practically all other products.

(Figures indicate barrels and are from Bureau of Mines)

ITEM	NOVEMBER 1938	NOVEMBER 1939	NOVEMBER Percent Change	FIRST 11 MONTHS 1938	FIRST 11 MONTHS 1939	FIRST 11 MONTHS Percent Change
SUMMARY						
Total Demand	114,571,000	121,434,000	+ 6.0	1,210,622,000	1,294,636,000	+ 6.9
Daily average	3,819,000	4,048,000	+ 6.0	3,625,000	3,876,000	+ 6.9
Exports:						
Crude petroleum	5,602,000	5,323,000	— 5.0	72,371,000	67,417,000	— 6.8
Refined products	8,458,000	7,816,000	— 7.5	105,237,000	108,352,000	+ 2.9
Domestic Demand:						
Motor fuel	45,084,000	47,275,000	+ 4.9	481,261,000	508,863,000	+ 5.7
Kerosene	5,368,000	6,023,000	+ 12.2	49,547,000	53,888,000	+ 8.8
Gas oil and distillate fuels	11,551,000	12,433,000	+ 7.6	101,755,000	115,655,000	+ 13.7
Residual fuel oils	27,532,000	29,519,000	+ 7.2	262,087,000	290,506,000	+ 10.8
Lubricants	1,738,000	1,927,000	+ 10.9	19,402,000	21,788,000	+ 12.3
Wax	71,000	142,000	+100.0	934,000	1,005,000	+ 7.6
Coke	520,000	628,000	+ 20.8	5,083,000	6,492,000	+ 27.7
Asphalt	1,683,000	2,022,000	+ 20.1	22,998,000	25,465,000	+ 10.7
Road oil	221,000	212,000	— 4.2	7,699,000	7,775,000	+ 1.0
Still gas	5,373,000	5,756,000	+ 7.12	60,687,000	61,218,000	+ 0.9
Miscellaneous	144,000	167,000	+ 16.0	1,631,000	2,017,000	+ 23.7
Losses	1,226,000	2,191,000	+ 78.7	19,950,000	24,195,000	+ 21.3
Total domestic demand	100,511,000	108,295,000	+ 7.7	1,033,014,000	1,118,867,000	+ 8.3
Daily average	3,350,000	3,610,000	+ 7.8	3,093,000	3,350,000	+ 8.3
TOTAL DEMAND FOR PRODUCTS						
Motor Fuel:						
Domestic	45,084,000	47,275,000	+ 4.9	481,261,000	508,863,000	+ 5.7
Exports	3,698,000	2,560,000	— 30.8	44,686,000	41,423,000	— 7.3
Total	48,782,000	49,835,000	+ 2.2	525,947,000	550,286,000	+ 4.6
Aviation Gasoline (included above):						
Domestic	*	411,000	.....	*	*	.....
Exports	*	274,000	.....	*	3,862,000	.....
Total	.....	685,000	.....	.....	3,862,000	.....
Kerosene:						
Domestic	5,368,000	6,023,000	+ 12.2	49,547,000	53,888,000	+ 8.8
Exports	324,000	567,000	+ 75.0	6,701,000	7,591,000	+ 13.3
Total	5,692,000	6,590,000	+ 15.8	56,248,000	61,479,000	+ 9.3
Gas Oil & Distillate Fuels:						
Domestic	11,551,000	12,433,000	+ 7.6	101,755,000	115,655,000	+ 13.7
Exports	2,270,000	2,116,000	— 6.8	27,228,000	30,023,000	+ 10.3
Total	13,821,000	14,549,000	+ 5.3	128,983,000	145,678,000	+ 12.9
Residual Fuel Oils:						
Domestic	27,532,000	29,519,000	+ 7.2	262,087,000	290,506,000	+ 10.8
Exports	1,270,000	1,116,000	— 12.1	16,189,000	16,170,000	— 0.08
Total	28,802,000	30,635,000	+ 6.4	278,270,000	306,676,000	+ 10.2
Lubricants:						
Domestic	1,738,000	1,927,000	+ 10.9	19,402,000	21,788,000	+ 12.3
Exports	699,000	1,190,000	+ 70.2	8,741,000	10,671,000	+ 22.1
Total	2,437,000	3,117,000	+ 27.9	28,143,000	32,459,000	+ 15.3
Wax (thousands of pounds):						
Domestic	19,865,000	39,849,000	+100.6	261,469,000	281,489,000	+ 7.7
Exports	15,067,000	12,372,000	— 21.8	179,136,000	218,061,000	+ 21.7
Total	34,932,000	52,221,000	+ 49.5	440,605,000	499,550,000	+ 13.4
Coke (short tons):						
Domestic	104,000,000	125,700,000	+ 20.9	1,016,800,000	1,298,500,000	+ 27.7
Exports	24,200,000	38,500,000	+ 59.1	144,000,000	273,200,000	+ 90.0
Total	128,200,000	164,200,000	+ 28.1	1,160,600,000	1,571,700,000	+ 35.4
Asphalt (short tons):						
Domestic	305,900,000	367,600,000	+ 20.2	4,181,400,000	4,629,900,000	+ 10.7
Exports	3,400,000	2,300,000	— 32.4	44,500,000	40,300,000	— 9.4
Total	309,300,000	369,900,000	+ 19.6	4,225,900,000	4,670,200,000	+ 10.5
Road Oil:						
Domestic	221,000	212,000	— 4.2	7,699,000	7,775,000	— 1.0
Miscellaneous:						
Domestic	144,000	167,000	+ 16.0	1,631,000	2,017,000	+ 23.7
Exports	4,000	18,000	+350.0	95,000	109,000	+ 14.7
Total	148,000	185,000	+ 25.0	1,726,000	2,126,000	+ 23.2

* Figures not available.

Heavy Fuel Oil

Demand for residual fuel oil is determined by general industrial and business activity, as the heavy oils are used largely by factories, railroads, ships, and electric power plants. And the above estimate of a 5 percent increase in 1940 is in line with the indicated further rise in the average level of business, although some oil companies favor a more conservative forecast of about 4 percent. Fulfillment of either estimate would constitute the setting of a new record in residual fuel oil demand.

The domestic demand for residual fuel oil was 10.8 percent larger in the first 11 months of 1939 than in the corresponding months of 1938, in response to an increase of about 20 percent in the average level of industrial production. Exports of the heavy oils were practically the same in 1939 as in 1938.

Heating Oil

Demand for heating oil may be expected to break all previous records in 1940, following the reaching of a new peak in 1939. The current strong demand is based on the record number of domestic oil burners in use, and continuation of large consumption is assured by the fact additional burners are being installed in exceptionally large numbers. Shipments by manufacturers were more numerous in 1939 than in 1937, the previous record year for new installations.

Domestic demand for gas oil and distillate fuel was approximately 14 percent larger in 1939 than in 1938, and a further increase of 10 percent in 1940 appears quite possible. The weather materially influences heating oil consumption, and so far in 1940 it has been conducive to an increase over 1939.

Because of brisk industrial activity in the United States and the wars abroad, demand for lubricants is expected to increase materially in 1940, following a rise of 14 percent in 1939, when domestic consumption was up 12 percent and exports 18 percent.

Kerosene requirements probably will expand at least 3 to 5 percent in 1940, after having risen about 9 percent in 1939. And further increases in demand are indicated also for asphalt and most other petroleum products.

Oil Inventory Situation Good Except for Surplus Gasoline

THE oil industry has entered 1940 in an inventory position that is exceptionally favorable except for gasoline storage. The stocks of crude oil and most refined products are remarkably light in relation to prevailing demand; but those of gasoline, the industry's principal product, are seriously excessive.

Furthermore, no material betterment of the gasoline inventory situation is in prospect for the remainder of the winter, and the surplus stocks that will be on hand March 31 doubtless will prolong the current weakness of the gasoline market at least for several months.

Approaching Capacity

A mildly encouraging circumstance, however, is the fact that there is a physical limit to the proportions that gasoline stocks can reach—the capacity of the gasoline storage tanks of the country.

When they reached an all-time peak of 93,192,000 barrels at the end of the week ended March 19, 1938, the stocks probably utilized practically all available storage facilities; and it is doubtful if capacity subsequently has been expanded much, if any, above 95,000,000 barrels. If that is the approximate storage capacity, then stocks cannot be more than about 12,000,000 barrels above the economic level at the end of the winter, as economists consider 82,000,000 or 83,000,000 barrels as minimum requirements at that time. Such an excess would not be more serious than that embodied in present stocks, which are around 12,000,000 barrels larger than the economic level for this period.

Refined Oil Stocks

Although gasoline stocks were several millions of barrels larger at the end of 1939 than one year previously, the increase was compensated by aggregate withdrawals of about the same amount from stocks of other refined products. Consequently, there was not any material net change in 1939 in total stocks of refined products.

On the other hand, crude oil storage was further reduced by the exceptionally large amount of approximately 40,000,000 barrels, and natural gasoline stocks were brought down some, with the result that above-ground inventories of all oils showed a decrease of about 50,000,000 barrels for the year.

Stocks of All Oils

The stocks of all oils totaled 511,685,000 barrels on November 30, 1939, or 9.2 percent less than the 563,715,000 barrels held on the corresponding date a year before. The inventory of the end of November, 1939, represented only 126 days' supply, at the prevailing rate

Inventories of All Oils Reduced in 1939

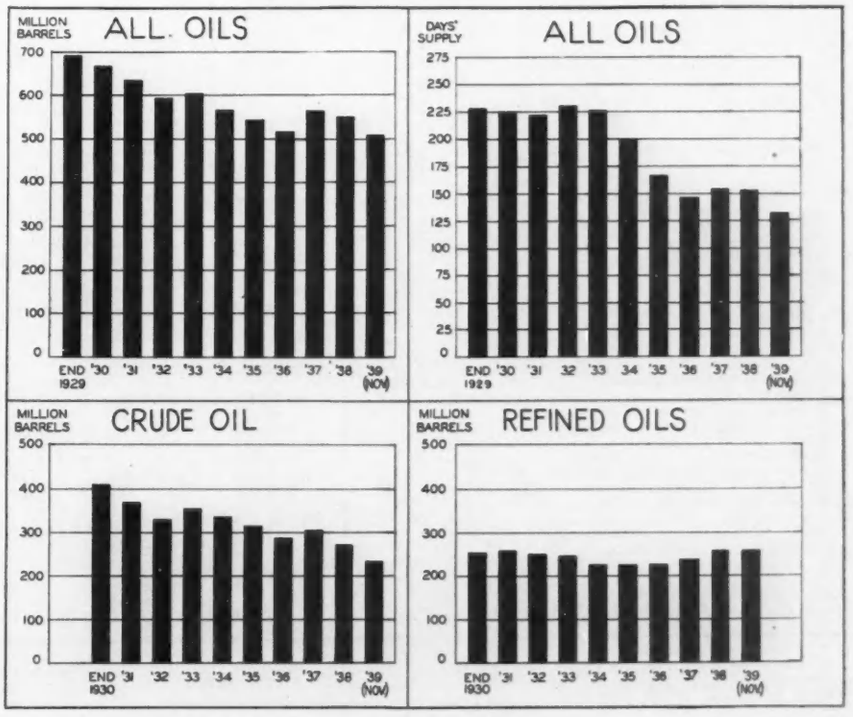
Stocks of crude oil and natural gasoline lowered sharply, and those of refined products in aggregate cut slightly.

(Source: Bureau of Mines)

STOCKS	Barrels on Hand November 30		Percent Change
	1938	1939	
Crude Petroleum:			
Refinable in U.S.	273,770,000	234,027,000	—14.5
Heavy in Calif.	16,765,000	13,664,000	—18.5
Natural Gasoline	5,742,000	4,579,000	—20.2
Refined Products	267,438,000	259,415,000	— 3.0
Total, all oils	563,715,000	511,685,000	— 9.2
Days' Supply:			
November basis	148	126	—14.9
11 month basis	156	132	—15.4

Stocks of All Oils Decrease in 1939, as Withdrawals Are Made from Inventories of Crude and Most Products

Chart is based on Bureau of Mines data



of consumption, as compared with 148 days' supply a year earlier, a decline of approximately 15 percent.

Having totaled 234,027,000 barrels on November 30, 1939, total stocks of refinable crude oil in the United States were 14.5 percent smaller than one year previously, when they aggregated 273,770,000 barrels. Stocks of heavy crude in California were down similarly, having declined to 13,664,000 barrels from 16,765,000, a decrease of 18.5 percent. Natural gasoline stocks of the country were 20.2 percent lower on November 30, 1939, than on the comparable date a year before, having declined to 4,579,000 from 5,742,000 barrels.

Tank Farm Storage Cut

Through the large withdrawals of 1939, the crude stocks of the country were brought down to the lowest levels since early 1922. Most of the decrease occurred at the tank farms and in pipe line storage, only about a million barrels out of the total of nearly 40,000,000 having constituted withdrawals from refinery stocks.

Crude was taken out of storage in all districts except Illinois, Indiana, and Kentucky, where an aggregate of about 4,000,000 barrels went into storage. The outstanding withdrawal was that of about 21,000,000 barrels in the Oklahoma-Kansas-North Texas district, caused largely by the half-month shutdowns of oil fields in August. Similarly, the August shutdowns were primarily responsible for the withdrawals of approximately 2,000,000 barrels in North Louisiana and Arkansas, 3,500,000 barrels in West Texas and New Mexico, 5,500,000 barrels in East Texas, and 8,000,000 barrels on the Gulf Coast. The Rocky Mountain states showed for 1939 a decrease of over 3,000,000 barrels in crude stocks, and California storage was reduced 1,500,000 barrels.

Stocks of Most Products Lower Than Year Ago

Withdrawals made in 1939 from supplies of fuel oils, kerosene, lubricants and wax; but gasoline added to storage.

(Source: Bureau of Mines)

PRODUCT	Barrels on Hand November 30		Percent Change
	1938	1939	
Gasoline:			
Finished	64,083,000	*71,619,000	+11.7
Unfinished	5,452,000	5,171,000	— 5.2
Total	69,535,000	76,790,000	+10.4
Kerosene	9,676,000	9,019,000	— 6.8
Gas Oil & Distillate Fuels	†32,069,000	†30,179,000	— 5.9
Residual Fuel Oils	†101,569,000	†91,466,000	— 9.9
Lubricants	7,817,000	6,799,000	—13.0
Wax (thousands of pounds)	131,772,000	81,369,000	—38.2
Coke (short tons)	678,400,000	647,000,000	— 4.6
Asphalt (short tons)	459,600,000	497,000,000	+ 8.1
Road Oil	660,000	654,000	— 0.9
Miscellaneous	260,000	302,000	+16.1
Other Unfinished Oils	39,461,000	37,947,000	— 3.8

* Includes Aviation Gasoline 2,526,000 barrels.
† At refineries only.

Stocks of Products

Total stocks of finished and unfinished gasoline in the United States amounted to 76,790,000 barrels on November 30, 1939, or 10.4 percent more than the 69,535,000 barrels held a year earlier.

But asphalt was the only other major product that showed an increase of inventories, its gain having been 8.1 percent.

Stocks of residual fuel oils were reduced in fulfilling sharply stimulated demand, when industrial activity spurted in the latter half of the year. The inventories on November 30 were 10,000,000 barrels smaller than one year before, having fallen to 91,466,000 from 101,569,000 barrels, a decline of 9.9 percent.

Storage of heating oil, similarly, was drawn upon in meeting sharply increased demand, and the stocks of 30,179,000 barrels on hand November 30, 1939, were about 2,000,000 barrels, or 5.9 percent, smaller than those held a year before.

Having been cut down to 9,019,000 barrels on November 30, 1939, from 9,676,000 barrels one year previously, stocks of kerosene showed a decrease of 6.8 percent.

Lubricants in storage totaled 6,799,000 barrels at the end of November, as compared with 7,817,000 barrels a year before. The 13 percent reduction reflected the sharply higher demand of the latter half of 1939.

Stocks of wax were sharply reduced, and moderate reductions were made in the inventories of road oil and coke.

Crude Stocks Cut Down in Past Year in Most Districts

Refiners' supplies largely same as year ago; but stocks at tank farms are 18 percent smaller, following substantial withdrawals in nearly all areas except Illinois, with Oklahoma, Kansas, and Texas showing large declines.

(Source: Bureau of Mines)

	BARRELS ON HAND NOVEMBER 30		Percent Change
	1938	1939	
At Refineries by Location:			
East Coast:			
Domestic	8,723,000	9,512,000	+ 9.0
Foreign	1,960,000	2,600,000	+ 32.6
Appalachian	1,091,000	949,000	— 13.0
Indiana, Illinois, Kentucky, Michigan	4,343,000	4,738,000	+ 9.1
Oklahoma, Kansas and Missouri	3,901,000	3,565,000	— 8.6
Texas:			
Inland	1,608,000	1,335,000	— 17.0
Gulf Coast:			
Domestic	12,172,000	12,111,000	— 0.5
Foreign	276,000	15,000	— 94.6
Louisiana Gulf Coast:			
Domestic	3,131,000	1,713,000	— 45.3
Foreign	401,000	295,000	— 26.4
Arkansas and Inland Louisiana	973,000	906,000	— 6.9
Rocky Mountain	1,896,000	1,841,000	— 2.9
California	9,654,000	9,581,000	— 0.8
Total	50,129,000	49,161,000	— 1.9
At Refineries by Origin:			
Pennsylvania Grade	846,000	524,000	— 38.1
Other Appalachian (including Kentucky)	457,000	417,000	— 8.7
Lima-Northeast Indiana-Michigan	454,000	824,000	+ 81.5
Illinois-Southwest Indiana	564,000	1,900,000	+236.9
North Louisiana and Arkansas	1,979,000	2,013,000	+ 1.7
West Texas and Southeast New Mexico	4,195,000	4,738,000	+ 13.0
East Texas	2,924,000	3,786,000	+ 29.5
Oklahoma, Kansas, North Texas, etc.	14,465,000	11,662,000	— 19.4
Gulf Coast	9,854,000	8,715,000	— 11.6
Rocky Mountain	2,011,000	1,938,000	— 3.6
California	9,743,000	9,734,000	— 0.1
Foreign	2,637,000	2,910,000	+ 10.3
Total	50,129,000	49,161,000	— 1.9
Pipe-Line and Tank-Farm:			
Pennsylvania Grade	4,696,000	3,990,000	— 15.0
Other Appalachian (including Kentucky)	760,000	904,000	+ 18.9
Lima-Northeast Indiana-Michigan	662,000	746,000	+ 12.7
Illinois-Southwest Indiana	10,430,000	14,092,000	+ 35.1
North Louisiana and Arkansas	6,033,000	*3,979,000	— 34.0
West Texas and Southeast New Mexico	19,572,000	14,997,000	— 23.4
East Texas	15,644,000	10,237,000	— 34.6
Oklahoma, Kansas, North Texas, etc.	94,146,000	73,460,000	— 22.0
Gulf Coast	17 903,000	10,022,000	— 21.7
Rocky Mountain	18,509,000	15,310,000	— 17.3
California	23,241,000	21,769,000	— 6.3
Total	211,596,000	173,506,000	— 18.0
Lease (Producers') Stocks†	12,045,000	11,360,000	— 5.7
Total Refinable Crude in the United States	273,770,000	234,027,000	— 14.5

* Includes Mississippi.
† November 30, Pennsylvania Grade, 305; Other Appalachian, 60; Lima, etc., 125; Illinois-Southwest Indiana, 349; North Louisiana-Arkansas, 480; West Texas-Southeast New Mexico, 970; East Texas, 900; Oklahoma-Kansas, 2,905; Gulf Coast, 1,130; Rocky Mountain, 510; California, 3,626.

World Production Sets New Record; to Go Higher

By Z. H. MISCHKA, Staff Writer

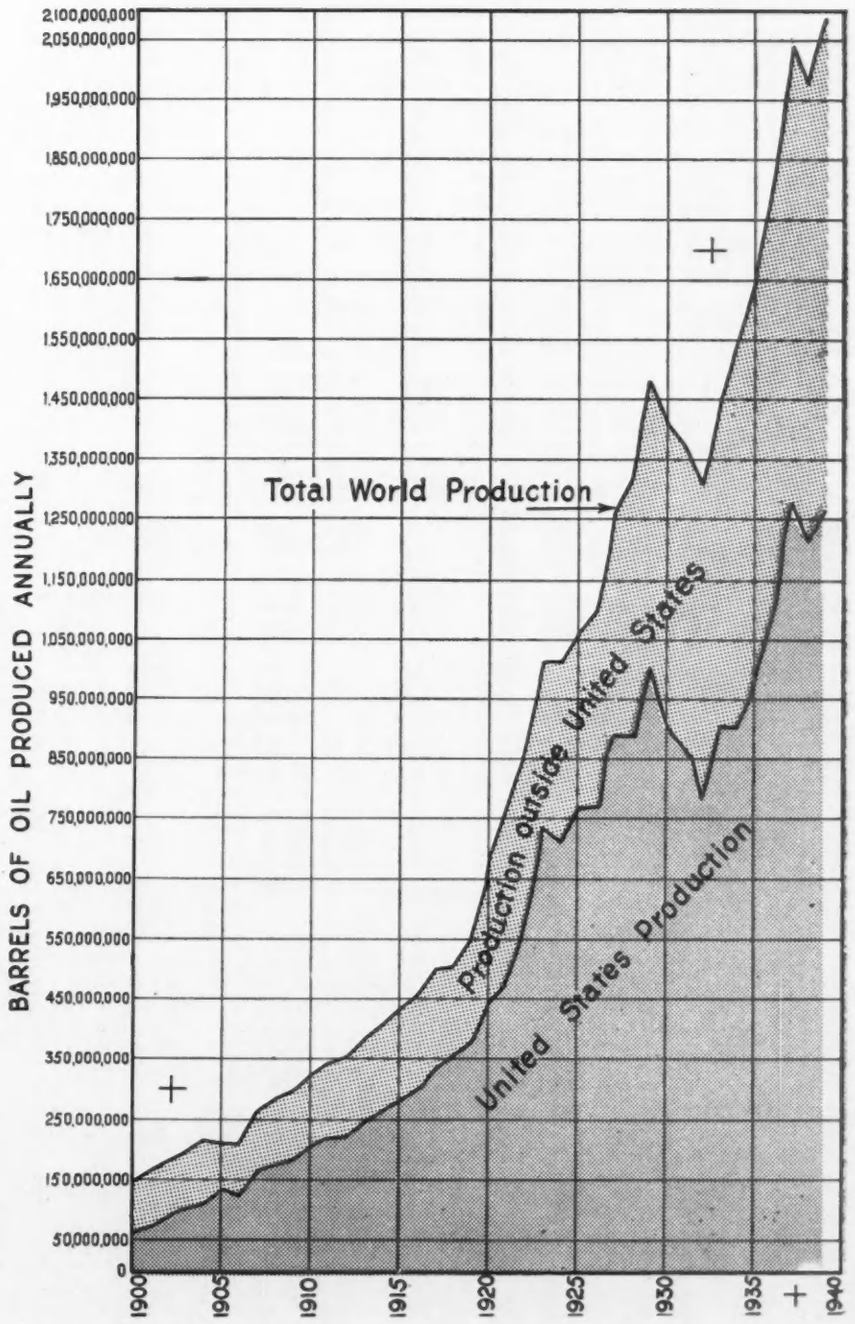
WORLD production of petroleum set a new record of 2,080,498,000 barrels in 1939, and every indication at the turn of the year pointed to an even higher production record for 1940.

Twenty-one of the 31 world countries for which production is individually recorded, recorded gains in 1939 over the previous year. In 9 countries production declined from the previous year, while in one other production remained constant. The 31 countries account for all but 580,000 barrels, or .03 percent, of total production.

The past year's production was 102,158,000 barrels, or 5.2 percent more than the 1,978,340,000 barrels produced in 1938, and 38,783,000 barrels or 1.4 percent above the 2,041,715,000 barrels of 1937, the previous record year.

An indicated intensified search for petroleum and expanded development programs in foreign countries to meet the gradual growing demand and an indicated increase of at least 5 percent in United States demand may boost this year's production well above 2,100,000,000 barrels.

Of the past year's total world production, 815,237,000 barrels or 39.2 percent was produced in countries other than the United States. In 1938, 765,086,000 barrels or 38.7 percent of that year's 1,978,340,000



The percentage of the world's annual production produced in the United States has dropped from 71 percent in 1925 to 60.8 percent in 1939.

barrels was produced in foreign countries.

While United States production gained 4.3 percent in 1939, from 1,213,254,000 barrels in 1938 to 1,265,261,000 last year, the combined gain in other countries was even greater. The increase in countries other than the United States, from 765,086,000 to 815,237,000 barrels, represented a percentage gain of 6.6.

Most spectacular production gain was recorded in Saudi Arabia. Appearing with a mere 20,000 barrels in 1936, production has steadily climbed to an estimated 4,244,000 barrels for 1939.

Noted gains were recorded during the past year by Egypt and Albania. Production in Egypt jumped almost 200 percent from 1,561,000 barrels in 1938 to 4,448,000 barrels in 1939, while Albania production climbed at an almost equal rate, from 489,000 to 1,386,000 barrels.

Increases were recorded by each of the world's five leading oil-producing countries, and their order remained unchanged from a year ago. Following behind the United States, U. S. S. R. production jumped from 202,290,000 to 212,975,000 barrels; Venezuela showed a comparable gain from 187,369,000 to 207,055,000 barrels;

World Crude Oil Production, by Countries, by Years

Complete Production History of World, in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* of the United States, 1918, 1930 and 1931; *Minerals Yearbook*, 1932, 1933 and subsequent years. Note: The figures of *Mineral Resources*, 1918, have been replaced here by figures from later reports, in cases where revisions have been made.)

YEAR	Rumania	United States	Italy	Canada	Russia except Sakhalin	Poland (Galicia)	Japan and Taiwan	Germany	India (British)	Netherland India	Peru	Mexico	Argentina	Trinidad	Egypt	Iran (Persia)	YEAR
1857	[A]1,977																1857
1858	3,560																1858
1859	4,349	[A]2,000															1859
1860	8,542	500,000	[A]36														1860
1861	17,379	2,113,609	29														1861
1862	23,198	3,056,690	29	[A]11,775													1862
1863	27,943	2,611,309	58	82,814	[A]40,816												1863
1864	33,013	2,116,109	72	90,000	64,586												1864
1865	39,017	2,497,700	2,265	110,000	66,542												1865
1866	42,334	3,597,700	992	175,000	83,052												1866
1867	50,838	2,347,300	791	190,000	119,917												1867
1868	55,369	3,646,117	367	200,000	88,327												1868
1869	58,533	4,215,000	144	220,000	202,308												1869
1870	83,765	5,260,745	86	250,000	204,618												1870
1871	90,030	5,205,234	273	269,397	165,129												1871
1872	91,251	6,293,194	331	308,100	194,391												1872
1873	104,036	9,893,786	467	365,052	474,379												1873
1874	103,177	10,926,945	604	168,807	583,751	[A]149,837											1874
1875	106,560	8,787,514	813	220,000	697,364	158,522	[A]4,566										1875
1876	111,314	9,132,600	2,891	312,000	1,320,528	164,157	7,708										1876
1877	108,569	13,350,363	2,934	312,000	1,800,720	169,792	9,560										1877
1878	109,300	15,396,868	4,329	312,000	2,400,960	175,420	17,884										1878
1879	110,007	19,914,146	2,891	575,000	2,761,104	214,800	23,457										1879
1880	114,321	26,286,123	2,035	350,000	3,001,200	229,130	25,497	[A]9,310									1880
1881	121,511	27,661,238	1,237	275,000	3,601,441	286,400	16,751	29,219									1881
1882	136,610	30,349,897	1,316	275,000	4,537,815	330,076	15,549	58,025									1882
1883	139,486	23,449,633	1,618	250,000	6,002,401	365,160	20,473	26,708									1883
1884	210,667	24,218,438	2,855	250,000	10,804,577	408,120	27,923	46,161									1884
1885	193,411	21,858,785	1,941	250,000	13,924,596	465,400	29,237	41,360									1885
1886	168,606	28,064,841	1,575	584,061	18,006,407	305,884	37,916	73,864									1886
1887	181,907	28,283,483	1,496	525,655	18,367,781	343,832	28,645	74,284									1887
1888	218,576	27,612,025	1,251	695,203	23,048,787	466,537	37,436	84,782									1888
1889	297,666	35,163,513	1,273	704,690	24,609,407	515,268	52,811	68,217	[A]94,250								1889
1890	383,227	45,823,572	2,998	795,030	28,691,218	659,012	51,420	108,296	118,065								1890
1891	488,201	54,292,655	8,305	755,298	34,573,181	630,730	52,917	108,929	190,131								1891
1892	593,175	50,514,657	18,321	779,753	35,774,504	646,220	68,901	101,404	242,284								1892
1893	535,655	48,431,066	19,069	798,406	40,456,519	692,669	106,384	99,390	298,969	[A]600,000							1893
1894	507,255	49,344,516	20,552	829,104	36,375,428	949,146	[B]173,000	122,564	327,218	688,170							1894
1895	575,200	52,892,276	25,843	726,138	46,140,174	1,452,999	170,000	121,277	371,536	1,215,757							1895
1896	543,348	60,960,361	18,149	726,822	47,220,633	2,443,080	237,000	145,061	429,979	1,427,132	[A]47,536						1896
1897	570,886	60,475,516	13,892	709,857	54,399,568	2,226,368	262,000	165,745	545,704	2,551,649	70,831						1897
1898	776,238	55,364,233	14,489	758,391	61,609,357	2,378,108	319,000	183,427	542,110	2,964,035	70,905						1898
1899	1,425,777	57,070,850	16,121	808,570	65,954,968	2,312,047	530,000	192,232	940,971	1,795,961	89,166						1899
1900	1,628,535	63,620,529	12,102	913,498	75,779,417	2,346,505	871,000	358,297	1,078,264	2,253,355	274,800						1900
1901	1,678,320	69,389,194	16,150	756,679	85,168,556	3,251,544	1,117,000	313,630	1,430,716	4,013,710	274,800	[A]10,345					1901
1902	2,059,935	88,766,916	18,933	530,624	80,540,044	4,142,159	996,000	353,674	1,617,363	2,430,465	286,725	40,200					1902
1903	2,763,117	100,461,337	17,876	486,637	75,591,256	5,234,475	1,209,000	445,818	2,510,259	5,770,056	278,092	75,375					1903
1904	3,599,026	117,080,960	25,476	552,573	78,536,655	5,047,383	1,219,000	637,431	3,385,468	6,508,485	[B]290,000	125,625					1904
1905	4,420,987	134,717,580	44,027	634,095	54,960,270	5,765,317	1,347,000	560,963	4,137,098	7,849,896	373,000	251,250					1905
1906	6,378,184	126,493,936	53,577	569,753	58,897,311	5,467,967	1,564,000	578,610	4,015,803	8,180,657	531,000	502,500					1906
1907	8,118,207	166,095,335	59,875	788,872	61,850,734	8,455,841	1,718,000	756,631	4,344,162	9,982,597	751,000	1,005,000	[A]101				1907
1908	8,252,157	178,527,355	50,966	527,987	62,186,447	12,612,295	1,871,000	1,009,278	5,047,038	10,283,357	945,000	3,932,900	11,472	[A]169			1908
1909	9,327,278	183,170,874	42,388	420,755	65,970,350	14,932,799	1,887,000	1,018,837	6,676,517	11,041,852	1,411,000	2,713,500	18,431	57,143			1909
1910	9,723,806	209,557,248	50,830	315,895	70,336,574	12,673,688	1,829,000	1,032,522	6,137,990	11,030,620	1,258,000	3,634,080	20,753	142,857			1910
1911	11,107,450	220,449,391	74,709	291,096	66,183,691	10,519,270	1,737,000	1,017,045	6,451,203	12,172,949	1,465,000	12,552,798	13,119	285,307	[B]21,000		1911
1912	12,976,232	222,935,044	53,778	243,336	68,019,208	8,535,174	1,659,000	1,031,050	7,116,672	10,845,624	1,752,000	16,558,215	47,007	436,805	214,000		1912
1913	13,554,768	248,446,230	47,198	228,080	62,834,356	7,818,130	1,940,000	[B]857,000	7,930,149	11,172,294	2,071,000	25,696,291	130,618	503,616	98,000	[B]1,857,000	1913
1914	12,826,579	265,762,535	39,849	214,805	67,020,522	[B]6,436,000	2,636,000	781,000	7,409,792	[A]11,422,000	1,837,000	26,235,403	275,500	643,533	753,000	2,910,000	1914
1915	12,029,913	281,104,104	43,898	215,464	68,548,062	5,352,000	2,928,000	703,000	8,202,674	11,920,000	2,579,000	32,910,508	[B]513,000	750,000	212,000	3,616,000	1915
1916	8,945,029	300,767,158	50,585	198,123	[B]65,817,000	6,587,000	2,963,000	656,000	8,491,137	12,547,000	2,503,000	39,817,402	867,000	928,581	404,000	4,477,000	1916
1917	3,720,760	335,315,901	40,763	213,832	63,072,000	6,228,000	2,861,000	642,000	8,078,843	13,180,000	2,577,000	55,292,770	1,218,000	1,602,312	943,000	7,147,000	1917
1918	[B]2,730,000	355,927,716	[B]35,000	304,741	27,168,000	6,032,000	2,441,000	270,000	[B]8,188,000	12,778,000	2,527,000	[B]63,928,000	1,353,000	2,062,068	1,935,000	8,623,000	1918
1919	6,618,000	[B]378,367,000	35,000	[B]241,000	31,752,000	6,096,000	2,238,000	265,000	8,736,000	15,508,000	2,628,000	87,073,000	1,331,000	[B]1,841,000	1,517,000	10,139,000	1919
1920	7,435,000	442,929,000	35,000	196,000	25,430,000	5,607,000	2,221,000	246,000	8,375,000	17,529,000	2,817,000	157,069,000	1,651,000	2,083,000	1,042,000	12,230,000	1920
1921	8,368,000	472,183,000	32,000	188,000	23,968,000	5,167,000	2,233,000	274,000	8,734,000	16,958,000	3,699,000	193,398,000	2,036,000	2,354,000	1,255,000	16,673,000	1921
1922	9,843,000	557,531,000	31,000	179,000	35,692,000	5,227,000	2,055,000	319,000	8,529,000	17,066,000	5,314,000	182,278,000	2,866,000	2,445,000	1,188,000	22,247,000	1922
1923	10,867,000	732,407,000	34,000	170,000	39,147,000	5,402,000	1,804,000	346,000	8,406,000	19,870,000	5,699,000	149,585,000	3,400,000	3,051,000	1,054,000	25,230,000	1923
1924	13,389,000	713,940,000	39,000	161,000	45,355,000	5,657,000	1,814,000	406,000	8,416,000	20,472,000	8,379,000	139,678,000	4,639,000	4,057,000	1,122,000	32,373,000	1924
1925	16,650,000	763,743,000	61,000	332,000	52,448,000	5,960,000	1,915,000	541,000	8,274,000	21,422,000	9,232,000	115,515,000	6,336,000	4,337,000	1,226,000	35,038,000	1925
1926	23,314,000	770,874,000	41,000	364,000	64,311,000	5,844,000	1,785,000	653,000	8,011,000	21,243,000	10,762,000	90,421,000	7,851,000	4,971,000	1,188,000	35,842,000	1926
1927	26,368,000	901,129,000	47,000	477,000	77,018,000	5,342,000	1,789,000	663,000	8,032,000	27,459,000	10,127,000	64,121,000	8,630,000	5,380,000	1,267,000	39,688,000	1927
1928	30,773,000	901,474,000	46,000	624,000	[B]84,745,000	5,492,000	1,944,000	630,000	8,741,000	32,118,000	12,006,000	50,151,000	9,070,000	7,684,000	1,842,000	43,461,000	1928
1929	34,758,000	1,007,323,000	45,000	1,117,000	[B]99,507,000	4,988,000	2,023,000	704,000	8,747,000	39,279,000	13,422,000	44,688,000	9,391,000	8,716,000	1,868,000	42,145,000	1929
1930	42,750,000	898,011,000	59,000	1,522,000	[B]125,555,000	4,904,000	2,047,000	1,222,000	8,887,000	41,729,000	12,449,000	39,530,000	9,002,000	9,419,000	1,996,000	45,833,000	1930
1931	49,741,000	851,081,000	124,000	1,543,000	162,842,000	4,662,000	1,966,000	1,608,000	8,715,000	35,539,000	10,089,000	33,039,000	11,709,000	9,744,000	2,038,000	44,376,000	1931
1932	53,815,000	785,159,000	208,000	1,044,000	154,367,000	4,116,000	1,630,000	1,608,000	8,817,000	39,001,000	9,899,000	32,805,000	13,139,000	10,126,000	1,895,000	49,471,000	1932
1933	54,020,000	905,656,000	204,000	1,145,000	153,382,000	4,072,000	1,455,000	1,665,000	8,743,000	42,667,000	13,257,000	34,001,000	13,691,000	9,561,000	1,663,000	54,392,000	1933
1934	62,438,000	908,065,000	150,000	1,411,000	174,986,000	3,913,000	1,821,000	2,187,000	9,201,000	46,529,000	16,314,000	38,172,000	14,025,000	10,894,000	1,546,000	57,851,000	1934
1935	61,773,000	996,596,000	119,000	1,447,000	182,386,000	3,812,000	2,249,000	2,996,000	9,219,000	47,171,000	17,067,000	40,241,000	14,297,000	11,671,000	1,301,000	57,273,000	1935
1936	64,188,000	1,099,687,000	123,000	1,500,000	199,055,000	3,788,000	2,440,000	3,115,000	9,566,000	50,025,000	17,593,000	41,028,000	15,458,000	13,237,000	1,278,000	62,718,000	1936
1937	52,709,000	1,279,160,000	110,000	2,944,000	195,155,000	3,716,000	2,488,000	3,176,000	10,010,000	56,724,000	17,457,000	46,907,000	16,355,000	15,503,000	1,196,000	77,877,000	1937
1938	48,366,000	1,213,254,000	101,000	6,956,000	202,290,000	3,763,000	2,557,000	4,074,000	8,992,000	57,481,000	15,839,000	34,794,000	16,937,000	17,736,000	1,561,000	77,230,000	1938
1939[J]	45,997,000	1,265,261,000	91,000	7,849,000	212,975,000	3,920,000	2,648,000	4,557,000	9,560,000	61,293,000	13,677,000	40,778,000	18,256,000	19,392,000	4,448,000	79,815,000	[J]1939
Total	875,577,176	22,452,401,719	2,707,718	55,835,770	4,194,204,907	258,923,251	80,250,035	46,138,041	291,061,365	913,709,621	252,078,855	1,940,454,162	204,538,001	181,684,391	38,071,000	950,532,000	Total

[A] Actual numbers of barrels are shown prior to 1918, as reported in *Mineral Resources*, 1918; except in cases where revisions have been made in later reports, with such revisions being in thousands of barrels.

[B] Figures beginning with this year are shown in nearest thousand barrels, being from *Mineral Resources* of 1930, and 1931; and from *Minerals Yearbook* in subsequent years.

[C] Production of France in previous years credited to Germany.

[D] No more data available.

Iran increased from 77,230,000 to 79,815,000 barrels; Netherlands Indies production advanced from 57,481,000 barrels to 61,293,000.

Rumanian production, which has been declining for the past four years, slipped even farther in 1939, dropping to 45,997,000 barrels from the previous year's total of 48,366,000 barrels. The country, however, continued in sixth place.

Two countries that dropped sharply in 1938 from 1937 recouped part of their losses in 1939. Mexican production dropped from 46,907,000 in 1937 to 34,794,000 barrels in 1938 with expropriation of foreign-owned properties, but last year climbed part of the way back to 40,778,000 barrels. Production in British India, which had dropped from 10,010,000 barrels in 1937 to 8,992,000 in 1939, advanced to 9,560,000 barrels last year.

Other countries that registered an increase in production in 1939 over the previous year were Canada, Poland, Japan, Germany, Argentina, Trinidad, British Borneo, Ecuador, Sakhalin, Australia and Hungary.

Declines occurred in Italy, Peru, France, Czechoslovakia, Colombia, Iraq, Bolivia and Bahrein Island, as well as Rumania.

World Crude Oil Production, by Countries, by Years—(Continued)

Complete Production History of World, in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* of the United States, 1918, 1930 and 1931; *Minerals Yearbook*, 1932, 1933 and subsequent years. Note: The figures of *Mineral Resources*, 1918, have been replaced here by figures from later reports, in cases where revisions have been made.)

YEAR	British Borneo (Sarawak And Brunei)	Algeria	Ecuador	Venezuela	France	England	Czechoslovakia	Sakhalin	Colombia	Iraq	Bolivia	Bahrein Island	Albania	Austria	Australia and New Zealand	Saudi Arabia	Hungary	Other Countries	Total World	Percent Produced by U.S.	YEAR
1857																			1,977		1857
1858																			3,560		1858
1859																			6,349	31	1859
1860																			508,578	98	1860
1861																			2,130,917	99	1861
1862																			3,091,692	99	1862
1863																			2,762,949	94	1863
1864																			2,303,780	92	1864
1865																			2,715,524	92	1865
1866																			3,899,278	92	1866
1867																			3,708,846	90	1867
1868																			3,990,180	91	1868
1869																			4,605,985	90	1869
1870																			5,798,214	91	1870
1871																			5,730,063	91	1871
1872																			6,877,267	93	1872
1873																			10,837,720	91	1873
1874																			11,933,121	92	1874
1875																			9,977,348	88	1875
1876																			11,051,267	83	1876
1877																			15,753,938	85	1877
1878																			18,416,761	84	1878
1879																			23,001,405	84	1879
1880																			30,017,606	90	1880
1881																			31,992,797	90	1881
1882																			35,704,298	85	1882
1883																			30,255,479	78	1883
1884																			35,968,741	67	1884
1885																			34,794,730	59	1885
1886																			47,243,154	59	1886
1887																			47,807,082	56	1887
1888																			52,164,597	53	1888
1889																			61,507,095	57	1889
1890																			76,632,838	60	1890
1891																			91,100,347	60	1891
1892																			88,739,219	57	1892
1893																			92,038,127	58	1893
1894																			89,336,953	56	1894
1895																			103,601,200	51	1895
1896																			114,199,101	53	1896
1897																			121,992,016	50	1897
1898																			124,978,293	44	1898
1899																			131,146,663	44	1899
1900																			149,136,302	43	1900
1901																		20,000	167,440,644	41	1901
1902																		26,000	181,809,038	49	1902
1903																		34,000	194,879,298	52	1903
1904																		40,000	217,948,084	54	1904
1905																		30,000	215,091,483	63	1905
1906																		30,000	213,263,298	59	1906
1907																		30,000	263,956,355	63	1907
1908																		30,000	285,287,421	63	1908
1909																		20,000	298,708,724	61	1909
1910																		20,000	327,763,863	64	1910
1911																		20,000	344,361,028	64	1911
1912																		20,000	352,443,145	63	1912
1913	[B]141,000																	20,000	385,345,730	64	1913
1914	318,000	[B]1,000																20,000	407,542,518	65	1914
1915	392,000	4,000																10,000	432,083,623	65	1915
1916	629,000	8,000																25,000	456,771,015	66	1916
1917	542,000	9,000	[B]57,000	[B]120,000	C													20,000	502,889,881	67	1917
1918	504,000	7,000	[E]60,000	333,000	[B]363,000													25,000	503,514,525	71	1918
1919	596,000	5,000	[E]60,000	425,000	334,000	[B]2,000	[B]48,000											20,000	555,875,000	68	1919
1920	1,020,000	4,000	[E]60,000	457,000	356,000	3,000	69,000											20,000	688,884,000	64	1920
1921	1,411,000	3,000	[E]60,000	1,433,000	389,000	3,000	94,000	[B]2,000	[B]67,000									20,000	766,002,000	63	1921
1922	2,849,000	9,000	[E]60,000	2,201,000	496,000	1,000	120,000	7,000	323,000									22,000	858,898,000	66	1922
1923	3,940,000	9,000	87,000	4,201,000	494,000	1,000	74,000	9,000	425,000									24,000	1,015,736,000	72	1923
1924	4,163,000	11,000	[E]100,000	9,042,000	497,000	2,000	76,000	90,000	445,000									24,000	1,014,318,000	70	1924
1925	4,257,000	12,000	160,000	19,687,000	450,000	3,000	158,000	87,000	1,007,000									23,000	1,068,932,000	71	1925
1926	4,942,000	9,000	214,000	36,911,000	478,000	2,000	150,000	191,000	6,444,000									17,000	1,096,822,000	70	1926
1927	4,943,000	8,000	537,000	63,134,000	504,000	2,000	112,000	440,000	15,014,000	[F]338,000								13,000	1,262,582,000	71	1927
1928	[G]5,223,000	8,000	1,084,000	105,749,000	512,000	1,000	94,000	677,000	19,897,000	713,000								15,000	1,324,774,000	69	1928
1929	5,290,000	20,000	1,381,000	137,472,000	535,000	D	93,000	[E]1,134,000	20,385,000	798,000	H							28,000	1,485,867,000	68	1929
1930	4,907,000	16,000	1,553,000	136,669,000	523,000	H	157,000	[E]1,805,000	20,346,000	909,000	[E]56,000							40,000	1,411,905,000	64	1930
1931	3,854,000	D	1,762,000	116,613,000	527,000	D	134,000	2,734,000	18,237,000	900,000	25,000							54,000	1,373,656,000	62	1931
1932	3,796,000	D	1,597,000	116,541,000	530,000	D	126,000	2,631,000	16,414,000	836,000	44,000							62,000	1,309,677,000	60	1932
1933	4,490,000	D	1,520,000	117,720,000	562,000	D	122,000	2,630,000	12,158,000	917,000	112,000	31,000	11,000	6,000	9,000			28,000	1,441,030,000	62.8	1933
1934	5,140,000	D	1,637,000	136,103,000	557,000	D	178,000	2,796,000	17,341,000	7,689,000	159,000	285,000	10,000	28,000	5,000			41,000	1,521,474,000	59.7	1934
1935	5,546,000	D	1,732,000	148,254,000	541,000	D	133,000	2,545,000	17,598,000	27,408,000	164,000	1,265,000	41,000	44,000	5,000			57,000	1,654,951,000	60.2	1935
1936	5,209,000	D	1,951,000	154,794,000	503,000	D	127,000	3,212,000	18,756,000	30,406,000	105,000	4,645,000	273,000	50,000	5,000	20,000		70,000	1,804,925,000	60.9	1936
1937	6,009,000	D	2,161,000	186,775,000	502,000	D	122,000	3,656,000	20,298,000	31,836,000	122,000	7,762,000	619,000	221,000	4,000	65,000	16,000	60,000	2,041,715,000	62.7	1937
1938	7,012,000	D	2,246,000	187,369,000	516,000	D	132,000	[J]3,900,000	22,450,000	32,643,000	107,000	8,298,000	489,000	366,000	4,000	495,000	318,000	64,000	1,978,340,000	61.3	1938
1939[J]	7,214,000	D	2,305,000	207,065,000	502,000	D	121,000	4,000,000	22,001,000	31,165,000	100,000	7,788,000	1,386,000	745,000	4,000	4,244,000	771,000	580,000	2,080,498,000	60.8	[J]1939
Total	94,337,000	143,000	22,484,000	1,889,058,000	10,680,000	20,000	2,440,000	32,528,000	250,606,000	166,558,000	994,000	30,074,000	2,829,000	1,460,000	36,000	4,824,000	1,105,000	1,753,000	35,250,097,012	63.7	Total

[B] Year ended September 30.
[F] Estimated.
[G] Beginning of production from Brunei.
[H] Less than one thousand barrels.
[I] Approximate.
[J] For 1939, figures for countries outside the United States are preliminary, having been estimated by THE OIL WEEKLY.

U. S. Crude Reserves Still Rising to New Peak Levels

By WARREN L. BAKER, Editor

THE United States' consistent trend in recent years of finding a considerably larger quantity of oil than it produced continued to exist during 1939. Consequently, the nation's proven petroleum reserves stand at the all-time peak of 18,751,050,000 barrels.

Moreover, the year marked the close of the greatest five-year discovery period in history, which reached such proportions that despite record production levels crude reserves showed the largest volume of growth yet experienced in a similar duration.

No Shortage Apparent

In view of the amazing upward trend of both oil discovery volumes and known producible reserves, it appears that the United States need not yet fear the approach of a shortage in petroleum supplies. For, when the time approaches that the nation is to shortly experience a scarcity of this commodity, new supplies will become increasingly more difficult to find at gradual rates and will not cease suddenly. That it is not yet nearing such a period is demonstrated by its expanding discovery rates and growing reserves, which is indicative that the country will be able to meet consumptive demand for many more years despite anticipated future growth in the already huge quantity being consumed annually.

Therefore, 1940 is seen as another year of discoveries that will exceed the volume consumed; if drilling activity continues at its present high level, and this is indicated by estimates for the year.

Reserves at Peak

The 18,751,050,000 barrels of proven crude reserves estimated to have existed at the close of 1939, compares with 17,348,146,000 barrels a year ago. This is a net gain of 1,402,904,000 barrels, and since production for the year totaled 1,265,261,000 barrels indicates that 2,668,165,000 barrels of oil were added by the finding of new fields, new producing horizons on previously located structures and extensions of old fields.

This volume becomes exceedingly significant when realized that the known crude reserves today constitute 83 percent of all the oil produced in the United States since

Proven Petroleum Reserves of the United States Continue to Increase

	January 1, 1925	Percent	January 1, 1935	Percent	January 1, 1937	Percent	January 1, 1938	Percent	January 1, 1939	Percent	January 1, 1940	Percent
West Coast:												
California	2,140,000,000	40.2	3,500,000,000	28.7	2,956,000,000	22.6	3,063,142,000	19.7	3,188,763,000	18.4	3,482,500,000	18.6
	2,140,000,000	40.2	3,500,000,000	28.7	2,956,000,000	22.6	3,063,142,000	19.7	3,188,763,000	18.4	3,482,500,000	18.6
Rocky Mountain:												
Wyoming	296,000,000	5.6	250,000,000	2.1	239,000,000	1.9	265,922,000	1.7	261,133,000	1.5	310,000,000	1.6
Montana	10,000,000	0.2	60,000,000	0.5	92,000,000	0.7	109,378,000	0.7	104,471,000	0.6	125,000,000	0.7
Colorado	49,000,000	0.9	12,000,000	0.1	15,000,000	0.1	19,125,000	0.1	17,713,000	0.1	16,750,000	0.1
	355,000,000	6.7	322,000,000	2.7	346,000,000	2.7	394,425,000	2.5	383,317,000	2.2	451,750,000	2.4
N. Mid-Continent:												
Kansas	315,000,000	5.9	400,000,000	3.3	568,000,000	4.3	601,317,000	3.9	613,230,000	3.5	630,000,000	3.4
Oklahoma	1,040,000,000	19.6	1,200,000,000	9.8	1,141,000,000	8.8	1,212,252,000	7.8	1,162,370,000	6.7	1,055,000,000	5.6
	1,355,000,000	25.5	1,600,000,000	13.1	1,709,000,000	13.1	1,813,569,000	11.7	1,775,600,000	10.2	1,685,000,000	9.0
Southwest:												
Arkansas	122,000,000	2.3	75,000,000	0.6	84,000,000	0.6	192,101,000	1.2	188,246,000	1.1	300,250,000	1.6
Louisiana	134,000,000	2.5	375,000,000	3.1	524,000,000	4.0	713,434,000	4.6	1,040,256,000	6.0	1,240,000,000	6.6
Texas	732,000,000	13.8	5,500,000,000	45.2	6,422,000,000	49.2	8,247,928,000	53.2	9,447,764,000	54.5	9,875,000,000	52.7
Mississippi											5,000,000	0.0
New Mexico	13,000,000	0.2	350,000,000	2.8	471,000,000	3.6	546,587,000	3.6	703,252,000	4.1	727,500,000	3.9
	1,001,000,000	18.8	6,300,000,000	51.7	7,501,000,000	57.4	9,700,050,000	62.6	11,379,518,000	65.7	12,147,750,000	64.8
North Central:												
Illinois	112,000,000	2.1	35,000,000	0.3	28,000,000	0.2	40,884,000	0.3	242,847,000	1.4	615,000,000	3.3
Indiana	11,000,000	0.2	5,000,000	0.0	3,000,000	0.0	2,622,000	0.1	6,031,000	0.0	17,500,000	0.1
Kentucky	79,000,000	1.5	35,000,000	0.3	39,000,000	0.3	38,366,000	0.2	37,545,000	0.2	37,550,000	0.2
Michigan			45,000,000	0.3	44,000,000	0.3	49,181,000	0.3	42,749,000	0.3	37,500,000	0.2
Ohio	120,000,000	2.2	30,000,000	0.3	32,000,000	0.3	28,456,000	0.2	26,358,000	0.1	25,000,000	0.1
	322,000,000	6.0	150,000,000	1.3	146,000,000	1.1	159,509,000	1.1	355,530,000	2.0	732,550,000	3.9
Eastern:												
New York	16,000,000	0.3	40,000,000	0.3	66,000,000	0.5	60,535,000	0.4	40,490,000	0.3	37,500,000	0.2
Pennsylvania	86,000,000	1.6	240,000,000	2.0	307,000,000	2.3	287,886,000	1.8	200,460,000	1.1	190,500,000	1.0
West Virginia	48,000,000	0.9	25,000,000	0.2	32,000,000	0.3	28,152,000	0.2	24,468,000	0.1	23,500,000	0.1
	150,000,000	2.8	305,000,000	2.5	405,000,000	3.1	376,573,000	2.4	265,418,000	1.5	251,500,000	1.3
Total U. S.	5,323,000,000	100.0	12,177,000,000	100.0	13,063,000,000	100.0	15,507,268,000	100.0	17,348,146,000	100.0	18,751,050,000	100.0

Figures for 1925, 1935, 1937, 1938 and 1939 from the American Petroleum Institute. Figures for 1940 compiled by THE OIL WEEKLY staff with assistance from many engineers and geologists.

United States Rates of Discovery Expand at Rapid Pace

PERIOD OF TIME	OIL DISCOVERED		OIL PRODUCED		EXCESS OIL FOUND		ACCUMULATED RESERVES (End of Period)	*WELLS COMPLETED		BARRELS FOUND	
	Barrels	Per-cent	Barrels	Per-cent	Barrels	Per-cent		Number	Per-cent	Per Well	Per Year
1859–1899	2,000,000,000	4.9	938,983,000	4.2	1,061,017,000	5.6	1,061,017,000	148,340	14.9	13,483	44,444,444
1900–1904	1,750,000,000	4.2	439,319,000	2.0	1,310,681,000	7.3	2,371,698,000	83,922	8.5	20,853	350,000,000
1905–1909	1,500,000,000	3.6	789,005,000	3.5	710,995,000	3.7	3,082,693,000	90,896	9.1	13,202	300,000,000
1910–1914	2,000,000,000	4.9	1,167,150,000	5.2	832,850,000	4.4	3,915,543,000	94,615	9.5	21,149	400,000,000
1915–1919	2,000,000,000	4.9	1,651,481,000	7.3	348,519,000	1.9	4,264,062,000	117,043	11.8	25,631	600,000,000
1920–1924	4,000,000,000	9.7	2,919,990,000	13.0	1,080,010,000	5.7	5,344,072,000	122,763	12.4	32,583	800,000,000
1925–1929	6,750,000,000	16.4	4,344,543,000	19.3	2,405,457,000	12.7	7,749,529,000	120,129	12.1	56,189	1,350,000,000
1930–1934	8,775,500,000	21.2	4,347,970,000	19.4	4,427,530,000	23.6	12,177,059,000	76,973	7.8	114,007	1,755,100,000
1935–1939	12,429,050,000	30.2	5,855,059,000	26.1	6,573,991,000	35.1	18,751,050,000	138,519	13.9	89,728	2,485,050,000
Total	41,204,550,000	100.0	22,453,500,000	100.0	18,751,050,000	100.0	.....	993,200	100.0	†41,486	†515,056,875

* Includes all tests drilled; dry holes, gas and oil wells. † Average for all years since 1859.

Drake drilled his famous discovery well 80 years ago.

The trend of known producible crude reserves has shown a consistent upward curve in the past 15 years, as shown in one of the accompanying tables. They have had a net increase of 13,428,050,000 barrels since 1925, and have climbed from 12,177,000,000 barrels on January 1, 1935, to their present record volume.

Discovery Rates Higher

Several arresting features regarding oil finding rates are well illustrated in the accompanying table on discovery rates, which shows by periods since 1895 the volume discovered, number of barrels produced, excess oil found, number of wells drilled, barrels found per well and per year.

The table shows that of the 41,204,550,000 barrels discovered since the start of the industry, 30 percent has been in the past five years, and 51.4 percent has been discovered in the last 10 years.

From 1935-1939 inclusive a total of 12,429,050,000 barrels were discovered, which was 6,573,991,000 barrels more than produced during the era. This constituted a record discovery volume of 2,485,050,000 barrels yearly, materially above the previous five years which included the gigantic East Texas field, the world's largest.

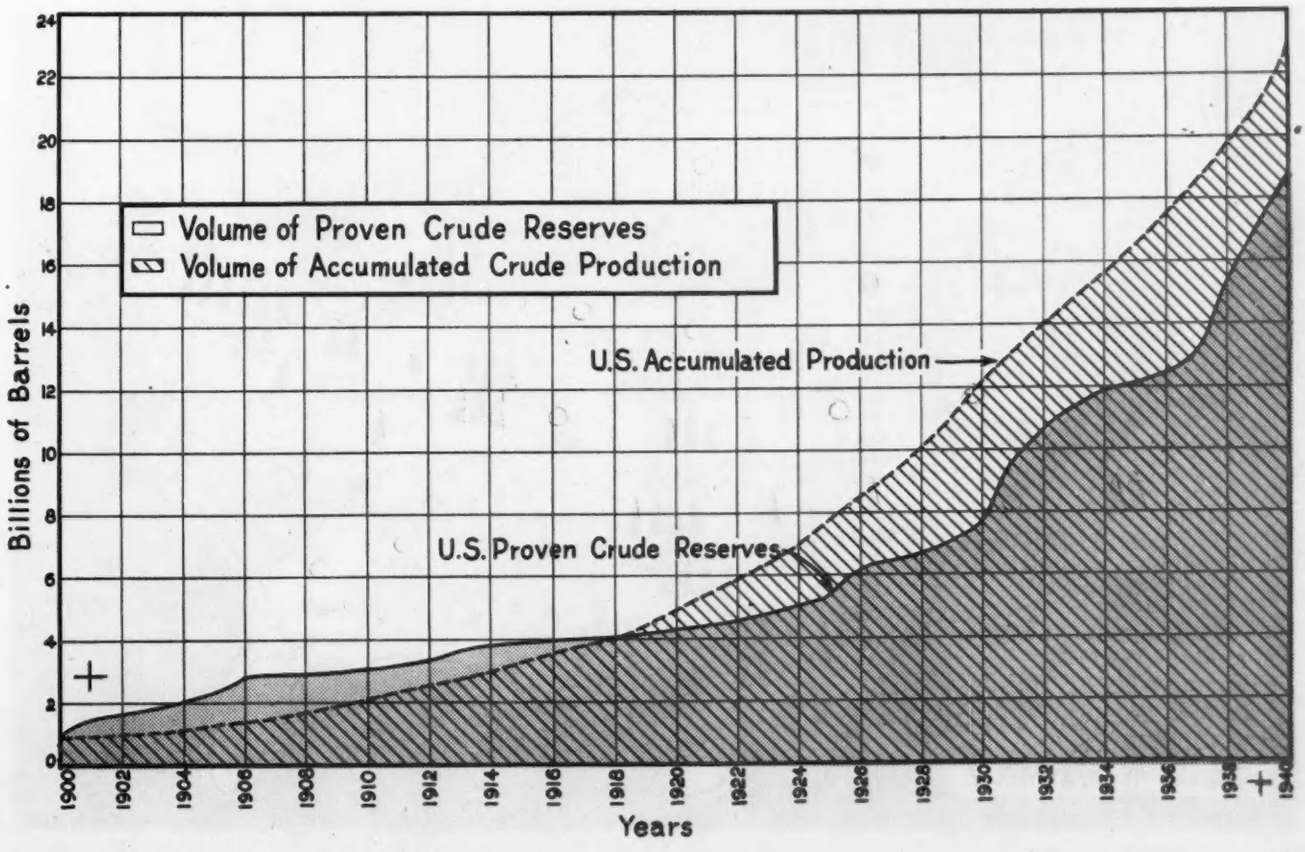
However, the last five years were not quite as efficient in discoveries per well. Since completions totaled 138,519 during the five years, a sharp gain, there was only 89,728 barrels found per well in contrast with 114,007 barrels in the 1930-1934 period.

The Southwestern States, comprised of Arkansas, Louisiana, Texas, New Mexico and Mississippi, have the largest portion of the United States' reserve. They have 12,147,750,000 barrels, or 64.8 percent. However, this is a slight drop in percent from the preceding year.

Texas continues as the largest single contributor, having 9,875,-

[*Continued on page 56*]

Comparative Trend of U. S. Reserves and Cumulative Crude Production



More Drilling in United States

THE circumstances surrounding the industry as the year opens should react to bring about the drilling in 1940 of 6.5 percent more wells than in 1939.

THE OIL WEEKLY's annual forecast of drilling indicates that approximately 29,346 wells will be drilled for oil and gas in 1940, compared with 27,550 wells drilled in 1939.

This prediction is the conclusion drawn from a study of the budgets of 75 oil companies, weighed with the opinions of district editors, state regulatory agencies, and officials in a position to speak authoritatively upon the amount of drilling to be expected. In this manner special circumstances existant in every active field or district came up for discussion and were evaluated as to their influence upon 1940 drilling activity.

All estimates were tempered with consideration of the general industrial situation, crude prices and stocks, gasoline prices and stocks, agitation for curtailing unnecessary drilling and speculation upon the effect of cessation or intensification of the European War.

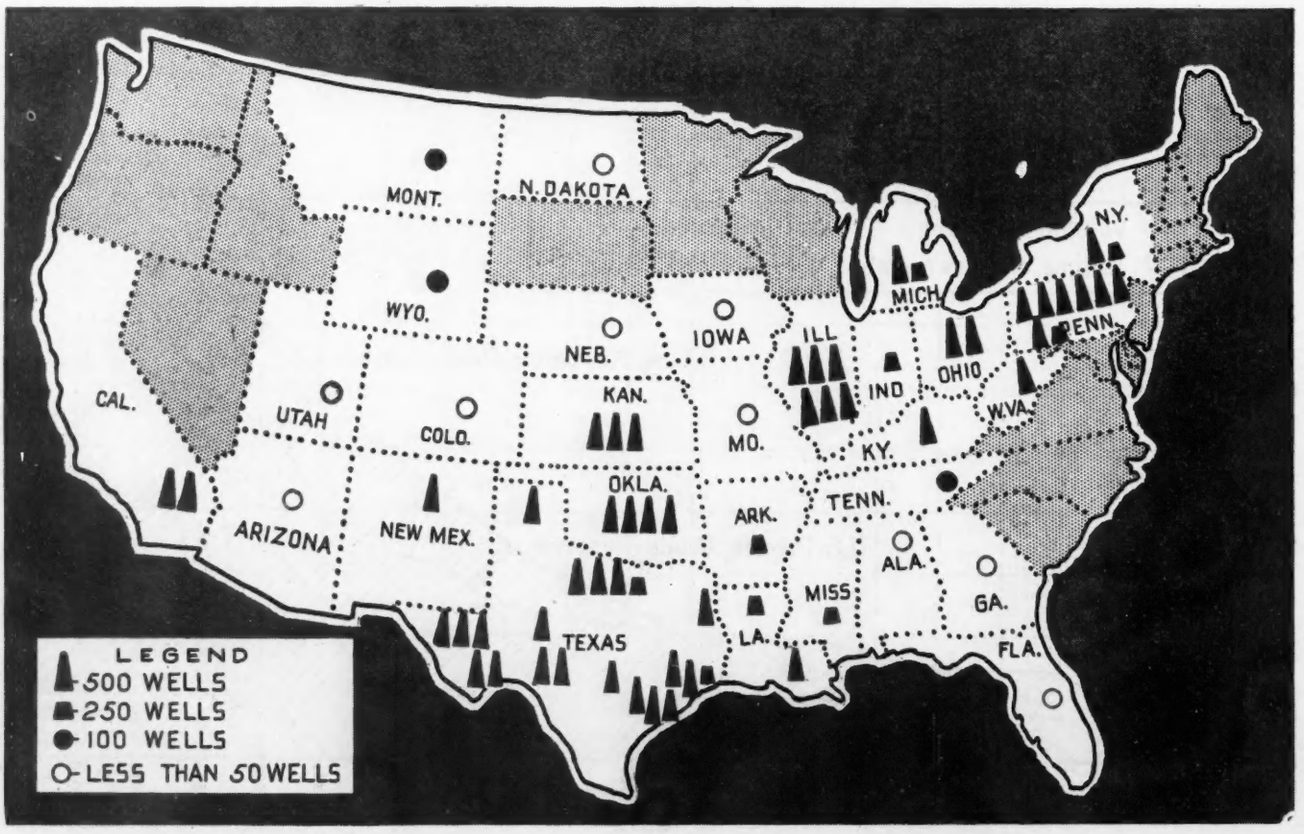
Any estimate of wells to be drilled that yields a 6.5 percent increase over 1939, an active year, must be optimistic in tenor. Factors substantiating this optimism arise from an expected increase in demand for petroleum products of about 5 percent over 1939. The increase of 7 percent from 1938 to 1939 may be bettered if the European War emerges from the stalemate stage and mobility becomes important.

The increase in demand for aviation gasoline that failed to materialize in the first five months of war would then develop, and with the present heavy demand for lubricating oils might accelerate American refinery activity.

On the other hand, early termination of the war would permit normal peacetime export activity, which to date has been more desirable than the war demand which has failed to keep pace with normal European usage.

Whatever the reason for the increase in demand, it is apparent that it must be supplied from current production, as crude stocks are near their lowest workable level and withdrawals are not likely. This situation will prove to be a drilling stimulant regardless of any

Expect 29,346 Wells To Be Drilled During 1940



Forecast For 1940

By WM. H. STRANG, Staff Writer

action taken to meet the demand with more liberal allowables to existing wells.

Drilling in 1940 will respond, as it always has, to the favorable crude price situation. In Pennsylvania and New York, where the price of Bradford crude has risen from $1.80 to $2.75 in the past year, drilling plans will be rushed. These two states together are expected to comprise 1786 wells of the expected increase for the nation of 1796 completions over 1939.

The 75 companies divulging their plans for 1940, few of whom operate in the Eastern States, expect to drill 2.6 percent more wells in 1940, or 8034 wells where 7827 were drilled in 1939. If the Mid-Continent states moderate refinery activity to the point where crude prices are not endangered by excessive gasoline stocks the following predictions will probably prove quite conservative. The low crude inventories resulting from the August shutdown should sustain prices until spring, when tourist travel and possible military drains will stiffen the market.

Mid-Continent Steady

Comparatively speaking, changes in Mid-Continent activity will be slight. Although emphasis will be almost entirely removed from certain districts within a state, and placed on others heretofore unimportant, the state totals will show no sharp changes.

Texas, where 34 percent of 1939 drilling occurred, will receive 428 more wells in 1940 for a gain of 4.5 percent. Oklahoma, with a total of 2185 wells—104 more than in 1939, will be up 5 percent. Kansas will gain 58 wells to total 1508, an increase of 4 percent. North Louisiana, in drilling 406 wells, will show 55 more than 1939 for a 15.7 increase. Arkansas, one of two states in the Mid-Continent to show a decline, will drill only 170 wells to drop 25.8 percent. New Mexico, the other declining area, will complete 650 wells, practically the same as in 1939.

Completions in Illinois, Indiana, and Kentucky will be considerably fewer than in 1939. Illinois will lead the decline with a drop of 756 wells as the shallower reserves in the Salem and Louden fields near complete development. Wells drilled to shallow horizons in these fields will be 1300 fewer than in 1939, but development of the Devonian lime will call for possible drilling of 850 wells to offset partially the decline in shallow drilling.

Griffin field development should be sufficient to bring the Indiana total to 360 wells, 22.4 percent more than 1939. Kentucky's failure to participate in the Illinois basin, if prolonged, will result in a decline of 11.7 percent to 580 wells.

Eastern States Renew Activity

Pennsylvania will take advantage of rising crude prices by drilling 3775 wells, including water-input wells, for a gain of 48.2 percent. New York will share in this campaign, drilling 1230 wells, nearly double the development in 1939. The effect of firm markets for high grade crude has been felt also in Ohio, where anticipated drilling will exceed 1939 by 5.9 percent. West Virginia, where gas reserves are well above demand, is expected to abate drilling 5.0 percent.

Michigan operations should complete 1200 wells, 17.5 percent fewer than the 1939 record total of 1455 attempts.

Due to brisk development of the Cut Bank and Kevin-Sunburst fields Montana should drill 170 wells in 1940; 11.8 percent more than in 1939. Wyoming is expecting heightened activity in all fields to total 149 completions, 20 more than in 1939. A recently completed 493-mile line through Wyoming to Salt Lake City will be one of the incentives to drill. Colorado, anticipating widespread exploratory activity, will drill 27 wells.

Curtailment Attempts

An organized attempt to prevent the drilling of unnecessary wells in California, fostered by the Central Committee of California Oil Pro-

The Oil Weekly Foresees More Drilling Activity in 1940

STATE	Wells Actually Drilled				Forecast For 1939		Actually Drilled in 1939		Forecast For 1940	
	1935	1936	1937	1938	Wells	Percent Change	Wells	Percent Change	Wells	Percent Change
Alabama	.....	2	2	1	10	+ 900	1	.....	5	+400.0
Arizona	.....	.....	.....	.....	.....	.....	3	.....	†	.....
Arkansas	123	90	140	224	245	+ 9	229	+ 1.8	170	— 25.8
California	1,092	1,123	1,470	1,270	750	— 41	1,037	— 18.4	992	— 4.3
Colorado	11	19	19	11	15	+ 36	19	+ 72.5	27	+ 42.0
Florida	.....	2	1	.....	10	.....	.....	.....	2	.....
Georgia	.....	.....	.....	.....	.....	.....	1	.....	1	.....
Illinois	.....	4	408	2,032	2,650	+ 30	3,806	+ 87.4	3,050	— 19.9
Indiana	.....	165	146	163	260	+ 59	294	+ 80.5	360	+ 22.4
Kansas	1,314	1,722	2,657	1,642	1,575	— 4	1,450	— 11.8	1,508	+ 4.0
Kentucky	.....	273	575	796	970	+ 22	657	— 17.7	580	— 11.7
Louisiana	732	994	987	1,072	1,250	+ 17	1,176	+ 9.6	1,396	+ 18.7
North Louisiana	321	556	510	508	600	+ 18	351	— 30.9	406	+ 15.7
South Louisiana	411	438	477	564	650	+ 15	825	+ 46.1	990	+ 20.0
Michigan	602	756	925	999	1,080	+ 8	1,455	+ 45.3	1,200	— 17.5
Mississippi	.....	8	14	21	40	+ 90	20	— 4.8	160	+700.0
Missouri	.....	.....	.....	164	.....	.....	82	— 50.0	†	.....
Montana	171	193	200	79	110	+ 39	152	+ 92.5	170	+ 11.8
Nebraska	.....	1	.....	1	3	+200	2	+ 100.0	†	.....
New Mexico	302	564	674	534	470	— 12	654	+ 22.4	650	— 0.6
New York	.....	760	1,253	692	720	+ 4	672	— 0.6	1,230	+ 83.2
North Dakota	.....	.....	.....	1	2	+100	.....	.....	†	.....
Ohio	.....	1,918	1,487	923	915	— 1	991	+ 7.4	1,050	+ 5.9
Oklahoma	2,320	2,857	2,926	2,087	1,920	— 8	2,081	— 0.3	2,185	+ 5.0
Pennsylvania	.....	2,256	3,154	2,583	2,060	+ 6	2,547	— 1.4	3,775	+ 48.2
Tennessee	.....	.....	.....	2	10	+400	33	+1550.0	69	+109.0
Texas	11,525	12,527	14,997	12,184	10,245	— 16	9,436	— 22.6	9,864	+ 4.5
East Texas Field	4,124	2,627	2,466	1,806	950	— 47	425	— 76.5	270	— 36.4
Rest of East Texas	311	566	1,007	487	410	— 16	303	— 38.0	298	— 1.6
North Texas	2,136	2,179	2,254	2,398	1,750	— 27	1,714	— 28.5	1,868	+ 9.0
South Texas	1,950	3,321	3,594	2,744	2,700	— 2	2,710	— 1.2	3,022	+ 11.5
Corpus Christi Area	.....	.....	1,456	1,216	1,250	+ 3	1,326	+ 9.5	1,595	+ 20.2
Laredo Area	.....	.....	1,522	1,057	1,100	+ 4	1,001	— 5.3	1,050	+ 4.9
San Antonio Area	.....	.....	616	471	350	— 26	383	— 18.7	377	— 1.6
Texas Gulf Coast	1,103	1,127	1,537	1,522	1,500	— 1	1,291	— 15.3	1,226	— 5.8
Texas Panhandle	670	665	838	571	550	— 4	453	— 20.6	515	+ 13.7
West Texas	813	1,579	2,898	2,290	2,050	— 10	2,045	— 10.7	1,975	— 3.4
West Central Texas	418	463	403	366	335	— 8	495	+ 35.2	690	+ 39.4
Utah	1	.....	1	4	5	+ 25	2	— 50.0	6	+200.0
West Virginia	.....	599	971	679	505	— 26	621	— 8.5	590	— 5.0
Wyoming	73	102	105	108	135	+ 25	129	+ 18.2	149	+ 15.5
Unclassified	*4,403	.....	.....	.....	10	.....	.....	.....	157	.....
Total United States	22,669	26,935	33,112	28,272	25,965	— 5.7	27,550	— 2.6	29,346	+ 6.5

* Represents Eastern States. † Included in total for "unclassified" states.

ducers, will have its effect in reducing the 1940 completions to 992, off 4.3 percent. The role of Japan as a customer for California crude has a direct bearing upon the drilling situation, and should no embargoes be imposed on this export, a greater decrease is not likely.

The industry must sometime face a delayed day of reckoning with the principles of the law of diminishing returns. In many of the eight prorated states declining per-well allowables have imposed an almost intolerable degree of restriction upon the producer and lengthened pay-out periods until much drilling is profitless and serves only to aggravate a serious condition. It can not be prophesied just when this condition will become so intense as to curb drilling abruptly in a natural fashion or bring about the formation of regulatory bodies to correct it in an arbitrary manner. If this should happen in 1940 all of the superficial encouraging circumstances would be of little effect.

However, the increased demand that appears practically certain for petroleum products during 1940 and the resulting gain in crude production will somewhat offset the shrinkage in per well allowables as new wells are completed. Not that the growth will be sufficient to permit larger well outputs in the face of newly completed wells that must be taken care of, but the enlarged production will allow for a considerable portion of the new producing completions.

Southeastern States Have Boom

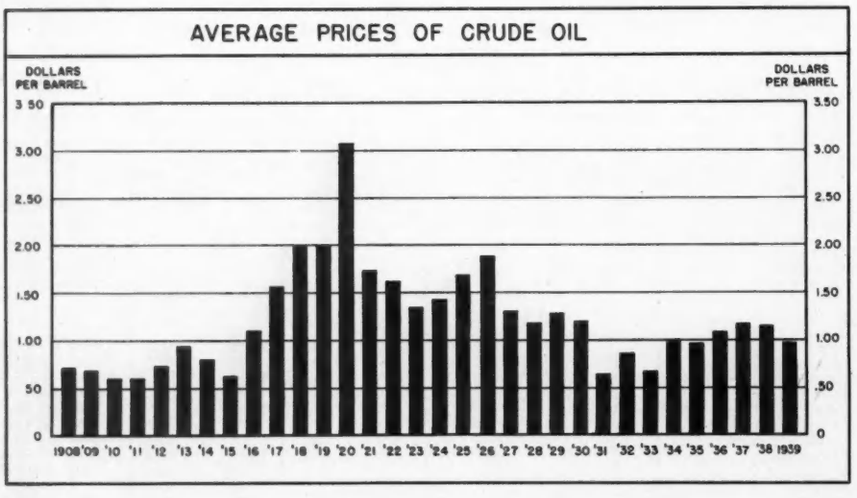
Mississippi, still largely an unknown quantity, has been assigned 160 wells in this projection of 1940 activity. Prospects are numerous, and many will be drilled. Should one or more of them be proven it is assumed that any great quantity of drilling will be done with money originally appropriated for another area, so that the United States total will not be appreciably increased. Tennessee, a participant in the leasing rush that followed the Tinsley discovery, will drill 69 wells—20 of them in the newly important areas in Dyer and Lauderdale County. Alabama has been alloted 5 wells on the basis of current geophysical activity.

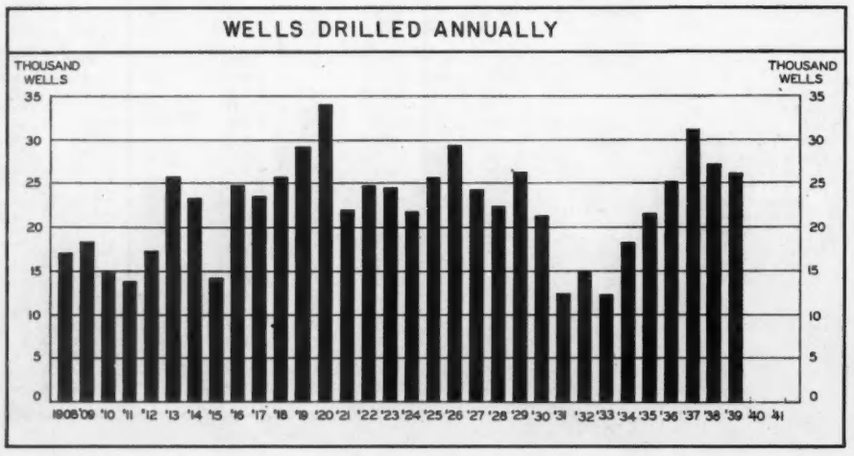
Effect of Crude Prices

Inspection of the accompanying chart showing fluctuation in crude prices and drilling reveals that in only five of the past 30 years—1909, '17, '22, '24, and '35—have changes in the average price of crude oil failed to cause a corresponding change in drilling activity. The average price for crude oil during 1939 was, at $0.98, 17 cents lower than the average for the preceding year, and lower also than the prices in 1937 and 1936—years in which the outlook was seldom as encouraging as at present. Any combination of factors causing a further depression of price would be difficult to conceive, as the general sentiment expressed by operators everywhere is that higher crude prices would not be out of keeping with the comparative scarcity of oil.

Crude Oil Prices Largely Control Drilling

The two charts below indicate that crude oil prices have a direct and immediate effect on drilling. In the past 31 years, upward or downward fluctuations of prices nearly always have been accompanied by increases or decreases in drilling. The charts are based on Bureau of Mines figures, although estimates are embodied in the data for 1939.





Crude Reserves

[*Continued from page 53*]

000,000 barrels. The state, while showing a rising reserve, failed to maintain its previous pace; perhaps due in part at least to a decline in drilling activity. However, Texas added a larger volume to its reserves than any other state, and was far in the lead in quantity discovered with approximately 910,000,000 barrels. All other states in the Southwestern district also continued to add to their reserves.

Illinois became a much larger crude reserve center, its volume rising 153 percent or 372,000,000 barrels to 615,000,000 barrels. This was the sharpest rate of gain registered. However, it still ranks but seventh among the states, being exceeded by Texas, California, Louisiana, Oklahoma, New Mexico and Kansas in the order named.

Due to the decrease in Oklahoma's estimated reserve and a considerable increase in Louisiana's, the latter became the third ranking reserve area, and Oklahoma dropped into fourth place.

Oil Is Facing Many Legislative Fights

AN oil industry which mercifully escaped adverse national legislation in the United States during 1939 enters 1940 facing a very different situation, with prospects that it may have to fight in Congress against federal control of production, divorce of marketing from other branches, anti-monopoly legislation and efforts of the federal government to secure title to all under-sea oil fields.

Balanced against the formidable array of legislative weapons are, however, two factors favorable to the industry: one, the desire to cut the session short because of the presidential campaigns, the other, the wish of President Roosevelt and Administration leaders generally to avoid the raising of controversial issues not definitely tied into the Administration's legislative program.

The industry also escaped any major legislation from the various states during the year, although numerous bills were enacted that had some influence on oil. Most important state legislation question that oil men are facing for 1940 is that of proration in Illinois; the largest producing state without a conservation act. It appears that a bitter fight will be made on this point.

National Affairs

The regular 1939 session of Congress resulted in the enactment of only two oil measures, both desired by a considerable segment of the industry — the extension of the Connally "hot oil" Act and continuance of federal approval of the Interstate Oil Compact.

At the same time, of course, the industry, together with all other lines of activity, was affected by some of the general legislation enacted, such as the 1939 revenue bill which, among other things, continued the various federal taxes on imported oil and its products.

During the first regular session of the Seventy-Sixth Congress, however, more than 50 measures dealing with oil in one way or another were introduced in Senate and House of Representatives. All these measures are still "alive," but few of them will be taken up for consideration during the current session.

Among the bills for which the way for consideration this year was paved at the first session were those sponsored by Representative Vincent F. Harrington of Iowa to divorce marketing from other branches of the industry, on which hearings were held by the House Judiciary Committee in May and June; by Representative Sam Hobbs of Alabama, to assert the title of the federal government to the California off-shore oil lands, the subject of hearings in March before a House Judiciary subcommittee which in May made an adverse report to the full committee; by Representative John J. Dempsey of New Mexico, to authorize states owning lands acquired from

Needed—An Octopus Tamer

Don't Singe Your Whiskers Uncle!

the federal government to include them in conservation agreements, passed by the House and reported upon favorably by a Senate committee; and the resolution sponsored by Senator Gerald P. Nye of North Dakota, also to assert the federal title to the California offshore lands, on which hearings were held in March by the Public Lands Committee.

Also during the session, Senator Robert R. Reynolds of North Carolina and Representative Martin J. Kennedy of New York introduced resolutions calling upon the Secretary of State to furnish information on the Mexican oil expropriations which, however, were tabled in committee.

A bill to supplement the Harrington marketing-divorce bill, providing for the divorce of pipe lines from other branches of the industry, was introduced during the session by Senators William E. Borah of Idaho and Guy M. Gillette of Iowa in the Senate, and Representative E. V. Izac of California and the late Representative J. Burrwood Daly of Pennsylvania in the House, and a measure for nationalization of the industry was introduced by Representative John M. Coffee of Washington.

The special session of Congress, called by President Roosevelt to enact new neutrality legislation, devoted itself exclusively to that subject and passed a measure under which American tankers as well as other vessels were prohibited from carrying oil to belligerent nations or to enter waters or ports designated by the President as "combat areas," while all sales of oil and its products to belligerent governments were placed on a "cash and carry" basis.

In November, the United States oil industry suffered because of the failure of Congress to be explicit in its writing of legislation. Acting under the Reciprocal Tariff Act, the State Department negotiated a reciprocal trade agreement with Venezuela under which the excise tax on imported crude and fuel oils was cut in half. Although the department said the impact of the reduction would be minimized by a "quota" also provided for, it was readily apparent to the industry that approximately twice as much oil could be imported as was brought in last year before the quota would be exhausted, and the State Department itself was shocked to find that it had given Venezuela a concession which might prove to be even more beneficial to Mexico and pave the way for sale in this country of oil from expropriated American properties for which no compensation has yet been paid.

Federal Control

The major threat of the current session of Congress is the Cole bill giving the Interior Department the authority to define and require the elimination of "waste" in the production of oil, thereby, in effect, giving the government full control of all domestic production.

Written in the Interior Department, where Secretary Harold L. Ickes has continuously agitated for federal control, the measure was sent to Congress last session by President Roosevelt with a request for its consideration and was introduced by Congressman William P. Cole, Jr., of Maryland, chairman of a House Interstate and Foreign Commerce subcommittee, which has since held a number of hearings on the subject.

Basic talking points for the bill at those hearings were the failure of Illinois to enact conservation legislation or curb its tremendously increasing output; the discovery of oil in Nebraska and its possible discovery in other states without such legislation; the maintenance of the industry on an export-excess basis, with imports of foreign oil but a fraction of the volume shipped abroad; the alleged application of conservation laws by the state authorities for price-stabilization purposes; the Louisiana "hot oil" scandal; and the alleged failure of the industry to eliminate waste.

That the bill will be enacted into law is considered doubtful in many quarters. There is, for instance, a considerable group in Congress which feels that New Deal incursions into business and industry have gone far enough; other members are opposed to federal con-

trol of industry on general principle; others believe the oil problem can be solved by the industry itself without government intervention, and a number just do not like Secretary Ickes and his apparent desire to run all natural resource industries from Washington.

Anti-Monopoly Investigation

A lesser threat in the current session may be raised by recommendations of the Temporary National Economic Committee, which in October spent 4½ weeks in hearings on the oil industry, for the enactment of new anti-monopoly legislation.

The TNEC investigations of monopoly in various industries were part of the Administration's trust-busting campaign, other features of which were the drives of the Department of Justice against monopolistic set-ups in the oil and various other industries.

So far, the Administration's campaign has been featured by many reverses and few victories. Further, such campaigns usually are sporadic in nature and more or less limited in life, and the general concensus is that the current one has about reached its limit.

Still further, war conditions in Europe and the necessity for rearranging our internal economy accordingly, make it less desirable to undertake any legislation which may disorganize industry. The Administration will continue to fight monopoly, but any legislation which may be enacted to that end probably will be much less drastic than was threatened when the anti-trust campaign was first broached.

Aside from these measures there is little in the current situation so far which will apply to the oil industry. Indications are that little in the way of tax legislation will be written this year and any that is developed will apply to oil only as it may apply to other commodities. Efforts will be made to prevent extension of the Reciprocal Tariff Act, due to expire this year, and may be successful, but they will have no effect upon the Venezuelan or other trade agreements already consummated.

Illinois Troubles

Will Illinois enact an oil conservation measure during 1940 and join the other major states in the restriction of crude oil production? That is a question of importance to every oil operator, whether he operates within the state or not.

Since early last fall it has been indicated the legislature would be asked to tackle the oil regulation problem in a special session. Governor Horner has implied he would call the special session early during the year, but thus far it has not convened.

In view of the heated controversy over the question, Illinois legislators are not any too pleased with the task confronting them. They feel they are in for a lot of undue criticism regardless of which way they vote.

"Unbridled" Illinois production has been blamed for many of the ills of the industry. It has risen from 5000 barrels daily three years ago to 350,000 barrels per day.

A lot of pressure is being exerted by both opponents and those favoring production regulation, and both sides view their chances with optimism.

The course of the industry to a large extent will be determined by the action or lack of action taken in Illinois.

California Vetoes Control

It is believed that new efforts will be made to obtain an oil-control measure for California during 1940, although the Atkinson bill was defeated handily at a special election late in 1939.

Meanwhile, the Central Committee of California Oil Producers continues its efforts to obtain voluntary production curtailment. And, it must be admitted, is doing a fair job under difficult conditions.

Michigan Enacts Conservation

Michigan, after six years of debate and battle, joined the group of states having some form of oil-conservation legislation in 1939 and at the same time became a member of the Interstate Oil Compact. The Michigan act, while backed by the state conservation commission

A Few Fingers in the Dike Won't Stop All Floods

and the administration, was pushed chiefly by the industry itself. Excepting early resistance from independent refiners and a block of independent producers in Southwest Michigan, the bill had general support of the industry.

The 1939 oil conservation act became a law on June 1. First weeks of the new law brought numerous protests of persecution, price fixing, unfairness, etc., but after seven months of administration the law appeared to be generally acceptable.

The act's provisions are broad, covering proration, spacing and prevention of waste. A few amendments may be passed at the 1941 legislature, but no radical revisions are anticipated.

Texas Inactive

Because Governor Lee O'Daniel, the flour salesman, and members of the Texas Legislature carried on open warfare throughout the entire regular session in the spring of 1939, little legislation affecting the oil industry was passed.

As routine measures, bills were passed extending the state conservation laws for two years more, but even these did not always have easy going.

The outstanding piece of legislation enacted, insofar as its effect on the oil industry is concerned, was the anti-vacancy hunter bill. This measure was intended to prevent vacancy hunters from obtaining title to valuable oil lands. The measure finally enacted into law is a hodge-podge that will require 15 or 20 years to correct. So many errors are included that the proponents of the bill seriously considered recalling it from the Governor's office for amendment. The measure, as finally approved, gives the occupant of the land prior rights in purchasing any vacancies that exist and gives the lessee oil company an opportunity to purchase in the event the land owner does not care to take advantage of his rights.

Unless land is totally unoccupied or title has never passed from the state, the profit to the vacancy hunter is so small that it is unlikely many of these tracts will be found in the future, or at least be the subject of much litigation.

Senator Metcalfe introduced and pushed through the legislature four bills intended to aid in collection of taxes on oil and gas. These bills require that before oil, gas, or casinghead gas may be moved from a lease, reports must be made to the State Comptroller. The bills also require that in suits over oil, gas, or casinghead gas taxes, the records in the office of the State Comptroller at Austin are prima facie evidence unless disproved, and answers to suits brought by the state must be filed within 30 days.

One bill was passed which requires that in leasing public lands, the Land Commissioner, the Attorney General, and the Governor were named as a board to pass on the sales. Prior to this time, this had been the sole responsibility of the Land Commissioner, and various sales had been criticized, especially during the administration of William H. McDonald, whose term as Land Commissioner terminated in 1939.

Bills were introduced providing for an omnibus tax bill, which would have increased the tax rates on oil, gas, and other natural resources, but this plan was vigorously opposed by O'Daniel and his administration in favor of the constitutional sales tax.

The Senate passed the constitutional sales tax resolution by the necessary two-third majority, but 56 members of the House fought the bill to the end of the session, and neither it nor any other major revenue raising measure was enacted.

An effort was made to pass a bill which would rewrite the confiscation laws to allow use of confiscated oil by state departments and its sale by the Board of Control. The purpose of the bill was to obtain a higher price for oil confiscated by the state. Ever since the confiscation law was passed, changes had been made that operated as a racket and permitted the sale through subterfuge to persons who had aided in its production. Since this applied to hot oil exclusively, the effect was to penalize a man only slightly for an offense which was punishable as a felony under the hot oil statute.

Under provisions of another bill, the legislature proposed to give the Railroad Commission power to regulate refineries. This program has been advocated for several years as a means of preventing the over production of gasoline. Invariably, when large stocks of gasoline were on hand, the price has been depressed, and sooner or later, this was reflected in the price of crude oil. The bill, however, failed to receive the necessary support and was never passed.

Another effort was made to rewrite the gas proration laws for the benefit of small lease owners in the Texas Panhandle. This was supported vigorously by one or two firms with large holdings cut into small tracts. The major pipe line companies opposing the bill charged that these concerns sought to produce gas which was not theirs and for which there was no market, and the bill was finally defeated.

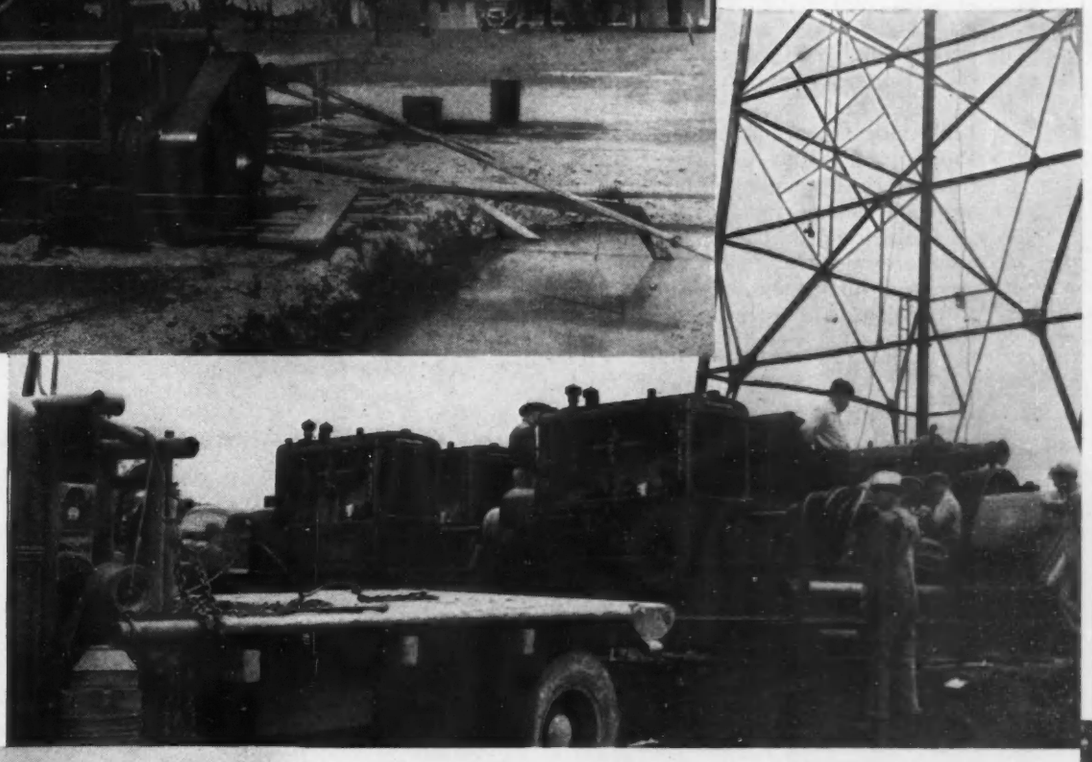
Another bill which fell by the wayside was one which would require return of salt water to the producing horizon. This measure did not get much support, but might have had an important bearing on oil production, especially in the East Texas field, where this salt water return has become one of the primary problems confronting the Railroad Commission. Under provisions of the bill, operators would have had to return salt water, and such a program would also have aided materially in efforts to prevent pollution of streams with salt water produced from oil wells.

Because pension payments fell enormously during the latter months of 1939, pressure has been brought to bear on the Governor to call a special session of the legisture to devise some method by which revenues for this fund can be increased. Governor O'Daniel has repeatedly refused to call a special session, but it is possible that one may be held during 1940.

In the event this occurs, a statutory sales tax or increased taxes on natural resources will be the most likely targets for the taxers. Because constitutional amendments can be introduced only at regular sessions, a constitutional sales tax would be out of the question. Many of the members of the legislature who opposed the constitutional sales tax would be willing to vote for a statutory tax, and the 94 majority which the sales tax had in the House at the regular session, would be sufficient to enact a bill.

However, most observers close to the Governor are of the opinion that he will call no such session before the election returns are in, and, more likely, that he will wait until January, when the new members come in, to renew the battle.

Save Money all the Way Around with INTERNATIONAL POWER



NOIS—Above: Two International PA-100 Power owned by Powers & Davis, Vandalia, power- the rotary table and mud pump on location in St. Elmo field.

AS—Right: An International-powered rig owned Taubert and McKee, Fort Worth drilling contrac-. These four PD-80 Diesel Engines, developing a of 400 max. h.p., are connected by a central ft to the drawworks, rotary table, and mud p. They provide ample power for drilling a 00-ft. hole with a 4-inch drill stem. Important ings in original cost, fuel, water, and rigging up tearing down on location are reported by the ers. Another International Engine is also used ower a 3-kw. light plant, 150-lb. pressure water p, and an air compressor.

EAST TEXAS—Above: Pumping at Kilgore with an International Power Unit operating on natural gas. The wide acceptance of Internationals for this work in every field is the best evidence of their ability to solve your problems.

● POWER that's in there getting results every minute, tha stands up to the toughest jobs—*that's* INTERNATIONAL Power More and more users are getting this power on their side— turning the *economy, stamina, dependability,* and *long life* o International Power Units *into profits for themselves.*

The more you see these outfits at work, the more you' appreciate how International Harvester's sound engineerin and quality construction pay out on the job. The feature built into every model in the line add up to *more work pe day* and *important savings on every operation.*

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180 North Michigan Avenue Chicago, Illinois

Pipe Line Construction Trebled; Outlook Good

PIPE LINE construction work, which has been fairly dormant for the past several years, showed a decided increase during 1939; and indications are that 1940 will be another important transportation building year.

Records of THE OIL WEEKLY show that approximately 4300 miles of pipe lines were built during 1939, not including many of the short systems or gathering units that were laid and which in the aggregate would create considerable additional mileage. This figure compares with but 1300 miles constructed during the preceding year. In addition 1220 miles of major pipe line work were in process of construction at the close of the last year.

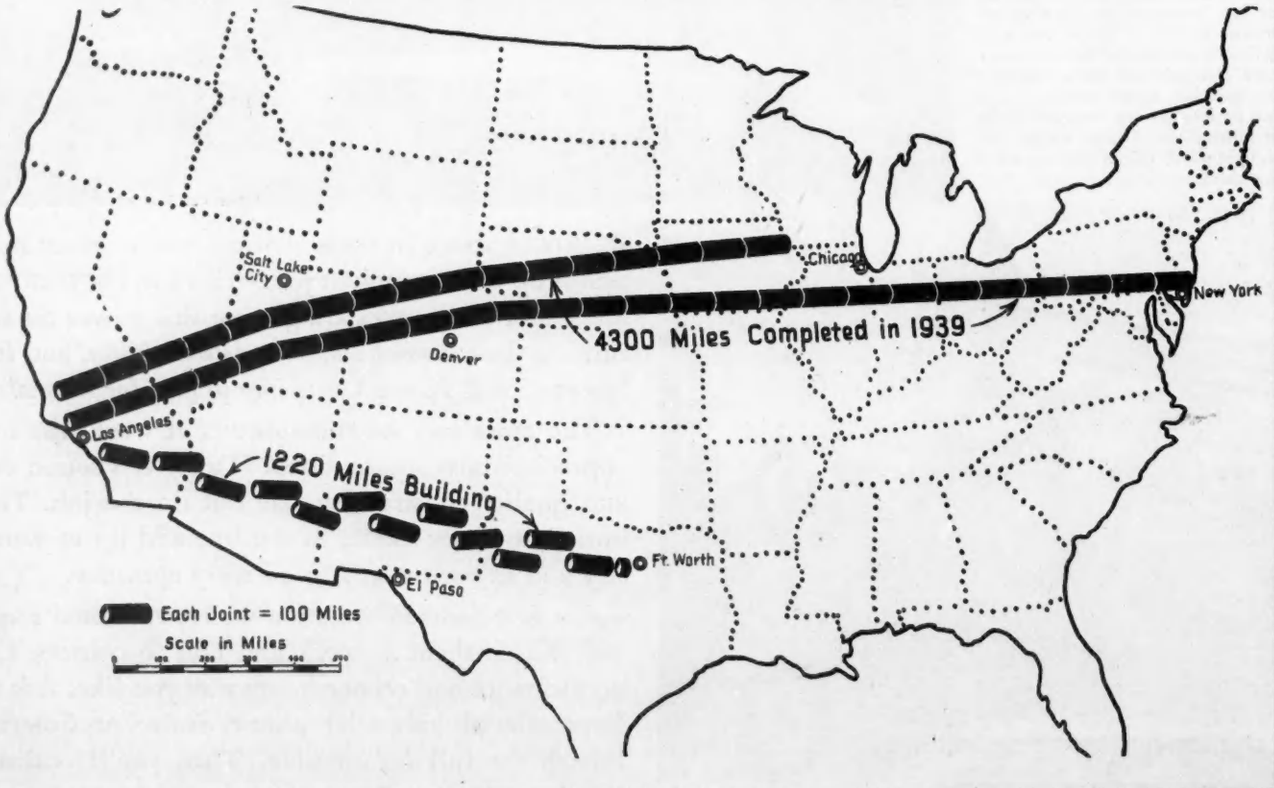
With the 1220 miles now building sending 1940 off with a running start that is practically equal to the volume built during 1938, another good year is anticipated. Moreover, a total of 3012 miles are known to be contemplated. While it is doubtful that a large portion of the latter will actually be laid, many systems entirely unknown at present are to be expected.

Construction of crude-oil carriers constituted by far the majority of the pipe line work. Of the total built, 841 miles were trunk lines for gasoline, 304 miles were natural gas lines, and the remaining 3155 miles were oil carriers. At present 600 miles of gasoline line, 171 miles of natural gas lines, and 450 miles of oil lines are under construction.

Long Gas Line Proposed

The longest pipe line project now contemplated is a 2300-mile natural gas system from Hugoton, Kansas, to Minnesota. However, it is considered doubtful if it will be constructed, at least during 1940. If it should materialize, 1940 is certain to be the most active pipe line year since the early 30's when

Important pipe lines constructed in the United States during 1939, if placed end to end, would reach from New York to Los Angeles and nearly back to Chicago. The 1220 miles now building would extend from Los Angeles to Fort Worth.



Another "sweet-looking, sweet-running" installation! . . . modern Cooper-Bessemer compressor units in pressure-maintenance service in Texas, where Magnolia Petroleum Company is another user of Type G-MR's.

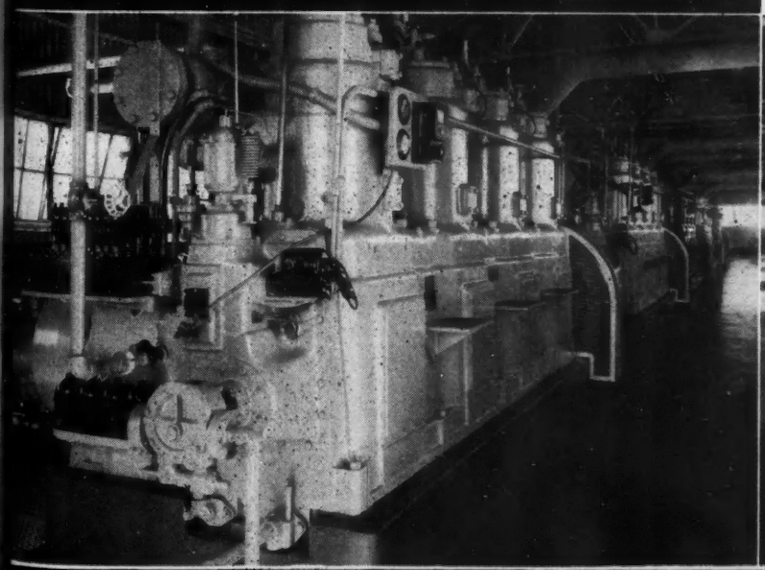
Pressure Maintenance . . .

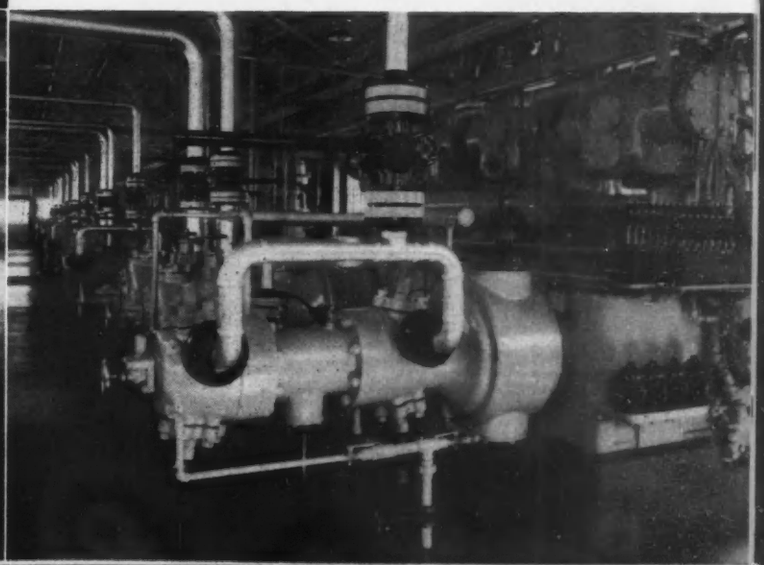
Another Job For G-MR's

Type G-MR's have proven themselves in similar installations all over the country. Their compact angle design means lower foundation, housing and hauling costs, two-cycle simplicity means lower maintenance and longer life, streamline scavenging assures efficiency and economy . . . and there are many more reasons why Magnolia, Belridge, Carter, Texas, Standard, and a long list of prominent users have chosen them.

Write our nearest branch for full information.

This line of 300 hp Type G-MR compressor units serves Magnolia Petroleum Company at its Magwalt, Texas, pressure-maintenance plant.





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Important United States Pipe Line Construction in 1939

(*Indicates Gasoline Line)

COMPANY	ORIGIN	TERMINUS	Length (miles)	Diameter (inches)	Capacity (barrels)	STATUS
Florida						
*Southeastern Pipe Line Co.	Port St. Joe	Lookout Mt. Ga.	450	6-8	.....	Building
Illinois						
Illinois Pipe Line Co.	Sandoval	Martinsville	48	8-12	.....	Completed
*Illana Corporation	E. St. Louis	E. Chicago, Ind.	252	8	25,000	Completed
Central States Pipe Line Co.	Salem	Lawrenceville	70	8-10	.....	Completed
Central States Pipe Line Co.	Boyleston	Salem Line	19	6	2,000	Completed
Texas-Empire Pipe Line Co.	Salem	Heyworth Sta.	115	10	30,000	Completed
Socony-Vacuum Oil Co.	Wood River	Lima, Ohio	367	10	40,000	Completed
Socony-Vacuum Oil Co.	Patoka	Sandoval	11	10	Lateral	Completed
Texas-Empire Pipe Line Co.	Salem	Heyworth	Loops	10	.....	Building
Illinois Pipe Line Co.'s	Sandoval	Vandalia	17	10	.....	Building
Indiana						
Finston & Co.	Griffin	Mt. Vernon	26	6	2,000	Contemplated
Sohio Pipe Line Co.	Griffin	Mt. Vernon	26	6	2,000	Completed
Kentucky						
General Gas Pipe Line Co.	Kentucky Field	Indian Cities	180	20	Gas	Contemplated
Kansas						
Cities Service Gas Co.	Cunningham	Hutchinson	42	8	Gas	Completed
Farmers Cooperative	Phillipsburg	Burnett Pool	52	4	3,500	Completed
Kansas Pipe Line & Gas Co.	Hugoton	Minnesota	2300	.....	Gas	Contemplated
Panhandle Eastern	Hugoton	Springfield, Ill.	140	22-24	Gas	Building
Stanolind Pipe Line Co.	Bemis	Washington	135	10-8	7,500	Building
Louisiana						
Standard Oil Co. (La.)	Haynesville	Arkansas Fields	45	6-8	.....	Completed
Michigan						
West Michigan Consumers	Grandville	Ravenna	21	6	Gas	Completed
Northern Pipe Line Co.	Arenac	Midland	42	6	Gas	Completed
Michigan Gas Transmission	Carrelton	Ann Arbor	21	6	Gas	Completed
American-Michigan	Lake George	Big Rapids	29	4	Gas	Completed
Gas Corp. Michigan	Amble	Greenville	22	3½	Gas	Completed
Sohio Corp.	Deerfield	Dundee	4	4	3,500	Completed
Sohio Corp.	Walker	Grand Rapids	12	3-4-6	5,000	Completed
Naph. Sol. Ref. Co.	Walker	Grandville	10	3-4	4,000	Completed
Naph. Sol. Ref. Co.	Bloomingdale	Grand Junction	15	3	3,000	Completed
Imperial Pipe Line Co.	Walker	Grandville	14	4-6	6,000	Completed
Vandale Corp.	Bloomingdale	Grand Junction	13	4	2,500	Completed
Vandale Corp.	Bangor	McDonald	4	4	1,000	Completed
Simrall Corp.	Wise	Loomis	4	4½	2,500	Completed
Bay Pipe Line Co.	Wise	Loomis	4	3-4	2,000	Completed
Leonard Pipe Line Co.	Alma	St. Louis	4	3½	3,500	Completed
Commonwealth Pipe Line	Walker	Grandville	15	3-4-6	4,500	Completed
Transit & Storage Co.	Cygnet (Ohio)	Port Huron	69	8	20,000	Building
Missouri						
Standard Oil Co. (Indiana)	Sugar Creek	Council Bluff (Ia.)	180	8	10,000	Completed
New Mexico						
El Paso Natural Gas Co.	.....	.....	62	16	Gas	Completed
New Mexico Eastern Gas Co.	Carlsbad	Indust. Plant	16	4	Gas	Contemplated
New Mexico Gas Co.	Albuquerque	Belen	31	5⅝	Gas	Building
Texas New Mexico Pipe Line Co.	Loco Hills	Artesia Sta.	15	4-6	3,000	Completed
Texas New Mexico Pipe Line Co.	Lovington	Monument	16	5½	6,000	Completed
Texas New Mexico Pipe Line Co.	Lynch Sta.	Artesia Sta.	22	8	10,000	Completed
Texas New Mexico Pipe Line Co.	Vacuum	Monument	20	10	20,000	Completed
Texas New Mexico Pipe Line Co.	Monument	Jal Sta.	40	14	42,000	Completed
Texas New Mexico Pipe Line Co.	Leo County	Feeders	100	4-6-8	.....	Completed
Nebraska						
*Cimarron Valley Pipe Line Co.	Superior	Sioux City (Iowa)	280	6	.....	Completed

(*Continued next page*)

many of the major natural gas and gasoline systems that cross a large portion of the United States were constructed.

Foremost among the gasoline lines completed is Cimarron Valley Pipe Line Company's system from Superior, Nebraska, 280 miles to Sioux City, Iowa. Another important gasoline extension is Illana Corporation's 252-mile carrier from East St. Louis to East Chicago.

Under construction at this time is Southeastern Pipe Line Company's 450-mile gasoline line from Port St. Joe, Florida, to Georgia, and Magnolia Petroleum Company's 139-mile system from Corpus Christi to San Antonio.

The Rocky Mountain district repeated its 1938 history with the longest pipe line project. Utah Oil Refining Company built a 438-mile crude-oil carrier from Fort Laramie, Wyoming, across the southern sector of the state to Salt Lake City, Utah. The line provides outlet for several fields. It was built at a cost of approximately $7,000,000, and is the first to cross the Continental Divide. The only project in the Rocky Mountain area looming with any certainty for 1940 is a 90-mile 6-inch system from Craig, Colorado, to Wamsutter station on the Fort Laramie-Salt Lake City crude carrier. However, others are being contemplated, including a 260-mile system from Cut Bank, Montana, to Spokane, Washington.

Lines Serving Illinois

Due to its drilling activity and discovery of new fields, Illinois came in for extensive pipe line construction; and for the same reasons is expected to be active during 1940. The longest Illinois line during 1939 was Socony-Vacuum Oil Company's 367-mile 10-inch system from Wood River to Lima, Ohio. This unit has a capacity of 40,000 barrels daily. Texas-Empire Pipe Line Company laid a 115-mile 10-inch line from Salem to the Heyworth station on its Mid-Continent trunk line, that has a capacity of 30,000 barrels daily.

Reflecting anticipated increase in production of the Salem, Illinois, field, additions are being made to two systems. Main-line systems will be added to Illinois Pipe Line Company's line from Martinsville to Lima, Ohio, and some looping of this system is also proposed. A 17½-mile line from Sandoval to a point on the Martinsville-Lima

line is being added. Ten-inch is being used to loop The Texas-Empire Pipe Line Company's line between Salem and Heyworth Station, where connection is made with the Mid-Continent-to-Chicago trunk line. The Carmi (Storms) area of White County, opened late in 1939 as an oil field, is another Illinois area that will require outlet during the year. Indications are that it will develop considerable production.

South Texas saw the most intensive pipe line building program it has witnessed in several years, and several new lines are to be commenced shortly after the first of the year. However, the bulk of new building during 1940 is expected to be feeder lines. Congestion in several South Texas areas was relieved by 1939 building programs.

Important South American Lines

A line of major importance that was finished during 1939 was that from the Barco concession in Colombia to tidewater on the Caribbean Sea. This 263-mile 12-inch system opened a new and important oil source. It has a current capacity of 25,000 barrels daily, which may be stepped up to 70,000 barrels by the addition of more booster stations.

Another important system constructed outside of the United States was the Mende Grande line in Venezuela, which consisted of 100 miles of 16-inch pipe.

Panhandle Eastern Pipe Line Company has a major expansion program underway on its Hugoton-to-Chicago natural gas line; 140 miles of 22- and 24-inch loops are to be installed, 70.74 miles of which are to be between Hugoton, and Louisburg, Kansas. In addition new booster stations are to be added. The total approved program calls for an expenditure of $3,500,000.

Kansas, comparatively quiet the past year, is to receive an important crude oil outlet. Stanolind Pipe Line Company shortly will start construction of a 135-mile line from Bemis field in Ellis County to Washington Station in northeastern Kansas, where it will tie into the concern's system coming from Fort Laramie, Wyoming. Fields in Ellis and Russell counties will be served by the new 10-inch line, which is expected to have an initial capacity of 7500 barrels daily.

Important United States Pipe Line Construction in 1939

(Continued from preceding page)

(* Indicates Gasoline Lines)

COMPANY	ORIGIN	TERMINUS	Length (miles)	Diameter (inches)	Capacity (barrels)	STATUS
Rocky Mountain States						
Utah Oil Refining Co.	Ft. Laramie, Wyo.	Salt Lake City	438	6-8	140,630	Completed
Stanolind Pipe Line Co.	Opal, Wyo.	Granger, Wyo.	40	4	3,290	Completed
Rocky Mountain Pipe Line Co.	Lance Creek, Wyo.	Glenrock, Wyo.	60	4	4,935	Completed
Socony-Vacuum, Inc.	Big Muddy, Wyo.	Casper, Wyo.	18	4	1,480	Completed
General Petroleum Corp.	Cole Creek, Wyo.	Casper, Wyo.	10	6	1,850	Contemplated
Inland Empire Refineries, Inc.	Cut Bank, Mont.	Spokane, Wash.	260	8	85,000	Contemplated
Stanolind Pipe Line Co.	Craig, Colo.	Wamsutter, Wyo.	90	6	16,650	Contemplated
East Texas						
Humble Pipe Line Co.	Flag Lake	Mildred Sta.	18	4	3,000	Completed
Humble Pipe Line Co.	Navarro Crossing	Fairfield Sta.	26	4	3,000	Completed
Hunt Oil Co.	Chapel Hill	Overton	8½	3	2,000	Building
Lone Star Gas Co.	Buffalo	Bryan	52	8	Gas	Completed
Lone Star Gas Co.	Barron	Groesbeck	5	6	Gas	Completed
*Magnolia Pipe Line Co.	Kilgore	Beaumont	181	6⅝-5⅛-4½	4,000	Completed
Magnolia Pipe Line Co.	Kilgore	Feeders	20	3½-6⅝	.....	Completed
Sinclair Refining Co.	Long Lake	Trunk Line	10	6	6,000	Building
Sinclair Refining Co.	Long Lake	Feeders	3	4	.....	Building
Stanolind Pipe Line Co.	Caygua	Mexia	35	8-6	11,000	Completed
Tide Water-Seaboard	Cayuga	Long Lake	26	4	3,000	Completed
North Texas						
Bridwell Oil Co.	Halsell	Henrietta Sta.	5	2	1,000	Completed
Muenster Refining Co.	Voth	Muenster	3½	2	1,000	Completed
Shell Pipe Line Corp.	Archer City	Ryan	32	10	.....	Building
Sinclair Refining Co.	K-M-A	Hensley Sta.	66	6	8,000	Completed
Sinclair Refining Co.	K-M-A	Hensley Sta.	66	8	.....	Completed
Sinclair Refining Co.	K-M-A	Feeder Lines	20	4-6	.....	Completed
Sinclair Refining Co.	Gainsville	Muenster Sta.	14	6	5,000	Completed
Sinclair Refining Co.	Hull-Silk	Feeder Lines	4	4	4,000	Completed
Sinclair Refining Co.	Nocona	Feeder Lines	3	4	4,000	Completed
Stanolind Pipe Line Co.	Bonita	Feeder Lines	4	4	3,000	Completed
Toronto Pipe Line Co.	Seymour	Shell Sta.	3	3	1,500	Completed
Tydal Refining Co.	Voth	Muenster Sta.	3½	2	1,000	Completed
South Texas						
Amsco Pipe Line Co.	La Rosa	Corpus Christi	28	4	3,500	Completed
Amsco Pipe Line Co.	SRC	Munson	11	4	2,500	Completed
Coastal Minerals Corp.	Agua Dulce	Corpus Christi	26	.....	.....	.....
Continental Pipe Line Corp.	Alice	Alfred	5	4	2,000	Completed
Continental Pipe Line Corp.	San Diego	Corpus Christi	55	8	15,000	Building
Continental Pipe Line Corp.	Maine Line	Driscoll	55	5	6,000	Building
Coronado Corp.	La Rosa	Refugio	8	6	Gas	Contemplated
Corpus Christi Corp.	Stratton	Corpus Christi	30	5	3,000	Completed
Humble Pipe Line Co.	Randado	Colorado	22	4	3,000	Building
Humble Pipe Line Co.	Benavides	Kelsey	86	8	10,000	Completed
Jackson County Pipe Line Co.	Cordele	Edna	7	4	2,000	Completed
*Magnolia Petroleum	Corpus Christi	San Antonio	139	4-6	4,500	Building
*Magnolia Petroleum	West Ranch	Sealy	72	8	10,000	Completed
MAR Pipe Line Co.	Ben Bolt	Corpus Christi	45	6	8,000	Building
Rosa Pipe Line Co.	La Rosa	Corpus Christi	30	5	5,000	Completed
Southern Pipe Line Corp.	Bentonville	Saxet	24	6⅝	8,000	Completed
Southern Pipe Line Corp.	Reynolds	Bentonville	6	4	2,000	Completed
Southern Pipe Line Corp.	McCampbell	Corpus Christi	26	6	10,000	Contemplated
Valley Pipe Line Co.	Ricaby	Cuevitas	25	4½	5,000	Building
Valley Pipe Line Co.	Ricaby	Alta Mesa	43	5½	7,500	Building
Texas Gulf Coast						
Phillips Petroleum Co.	League City	Pasadena, Texas	20	6	5,000	Completed
Texas Pipe Line Co.	West Columbia	Webster, Texas	43	8	.....	Completed
West Central Texas						
Humble Pipe Line Co.	Woodson	Albany Sta.	25	2	2,500	Completed
West Texas						
Aloco Pipe Line Co.	Wasson	Hobbs, N. M.	23	6	12,000	Completed
Aloco Pipe Line Co.	Wasson	Feeder Lines	36	4-6-8	.....	Completed
Atlantic Pipe Line Co.	Kermit	Magnolia Sta.	10	4	3,000	Completed
Basin Pipe Line Co.	Wasson	Big Spring	100	6	12,000	Contemplated
Basin Pipe Line Co.	Wasson	Feeder Lines	15	4	.....	Contemplated
Cardinal Oil Co.	White-Baker	Yates Sta.	10	2	1,000	Completed
Coffield & Guthrie, Inc.	Sharon	Westbrook Sta.	15	4	3,000	Completed
Gilcrease Oil Co.	Crockett	McCamey Sta.	15	3	2,000	Completed
Gulf Refining Co.	Goldsmith	(Loop)	10	6	5,000	Completed
Gulf Refining Co.	Judkins-Lufkin	(Loop)	41	10	8,000	Completed
Humble Pipe Line Co.	Judkins	(Loop)	10	8	.....	Completed
Humble Pipe Line Co.	Sand Hills	Crane Sta.	5⅛	4	4,000	Completed
Humble Pipe Line Co.	Wasson	(Loop)	11½	8-6	5,000	Completed
Lone Star Gas Co.	San Angelo	Sanatorium	16	8-6	Gas	Completed
Moutray Oil Co.	Bowles	Hawley	10	2	1,500	Contemplated
Rio Gas & Power Co.	Page	El Dorado	9	2-3	Gas	Completed
Sahara Oil Corp.	Payton	Baldridge	38	2½-3½	2,000	Completed
Shell Oil Co.	Wasson	Gasoline Plant	100	6-8	Gas	Completed
Shell Pipe Line Corp.	Wasson	Hobbs, N. M.	33	6	12,000	Completed
Shell Pipe Line Corp.	Wasson	Feeders Lines	25	4-6-8	.....	Completed
South Plains Pipe Line Co.	Duggan-Slaughter	Levelland	35	4	5,000	Completed

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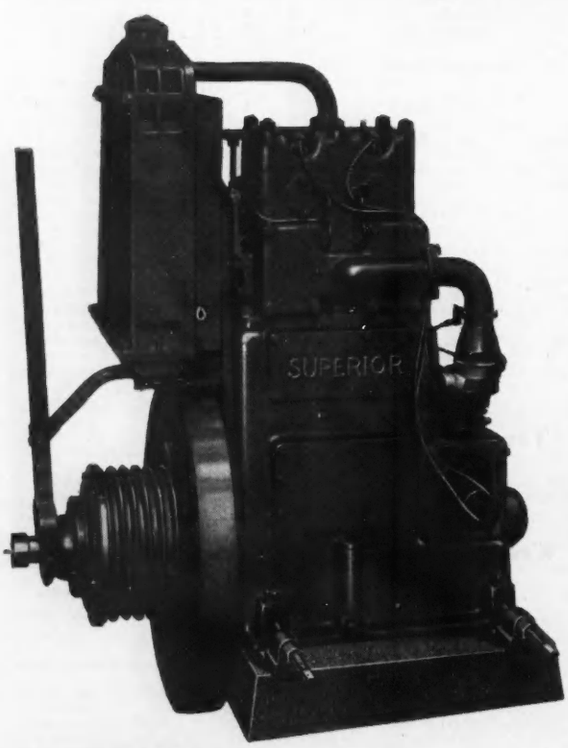

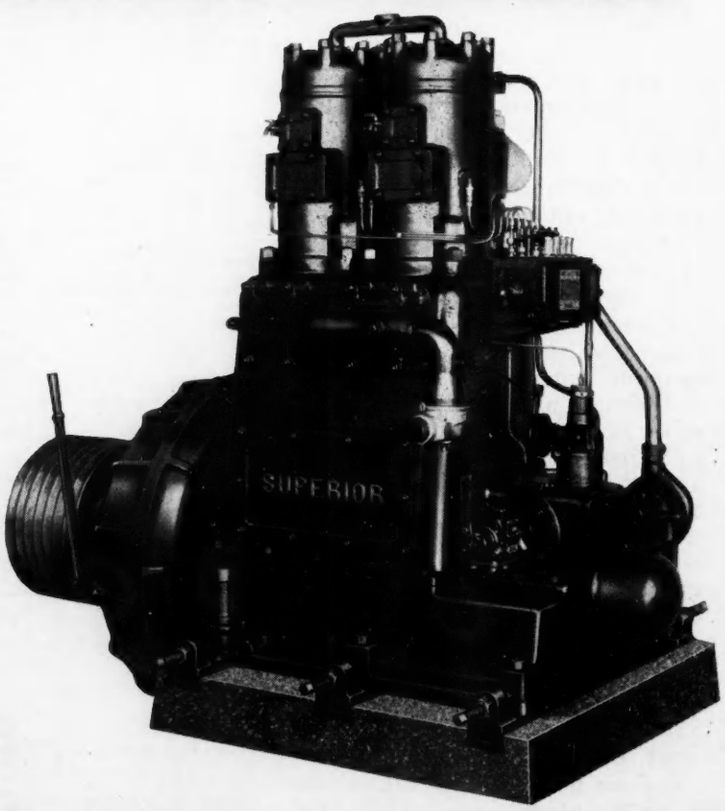

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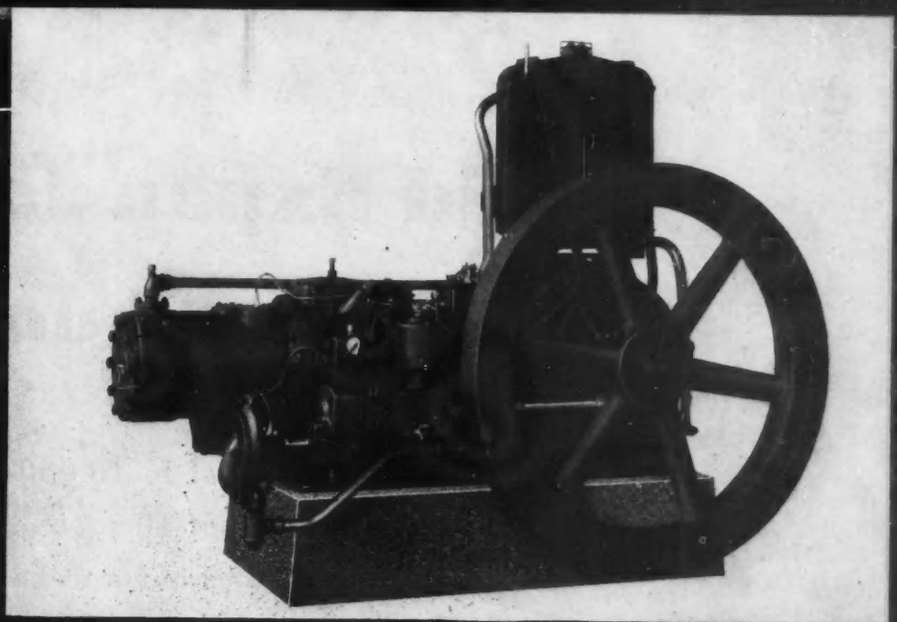

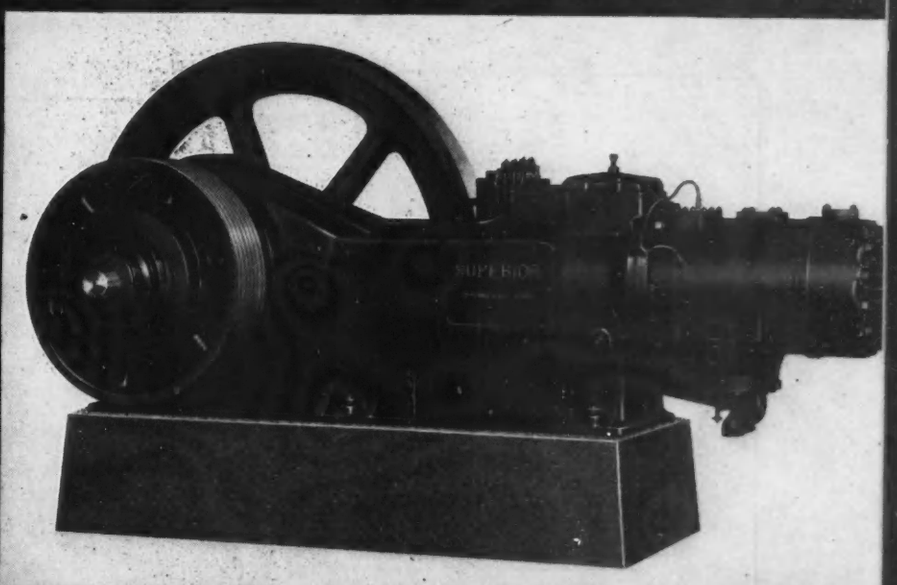

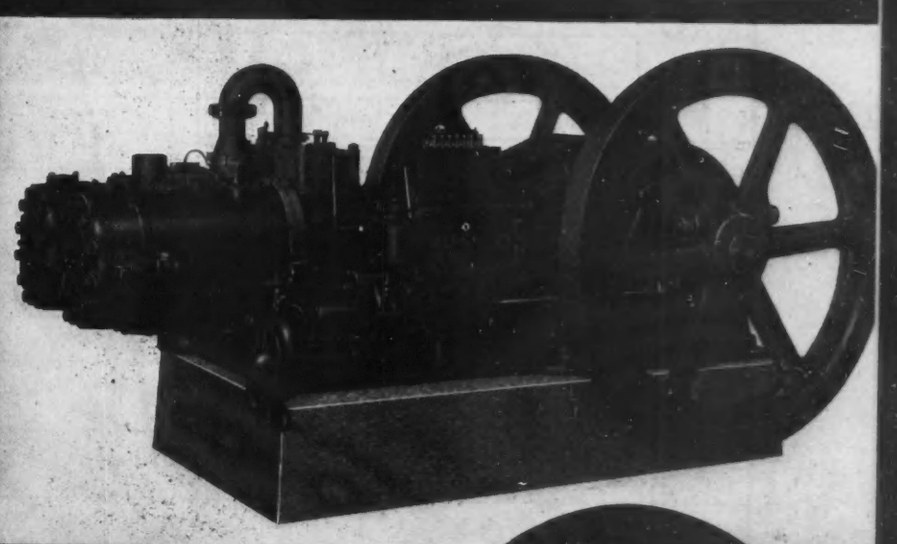

L SUPPLY COMPANY

DIVISION OFFICES
FT. WORTH, TEXAS
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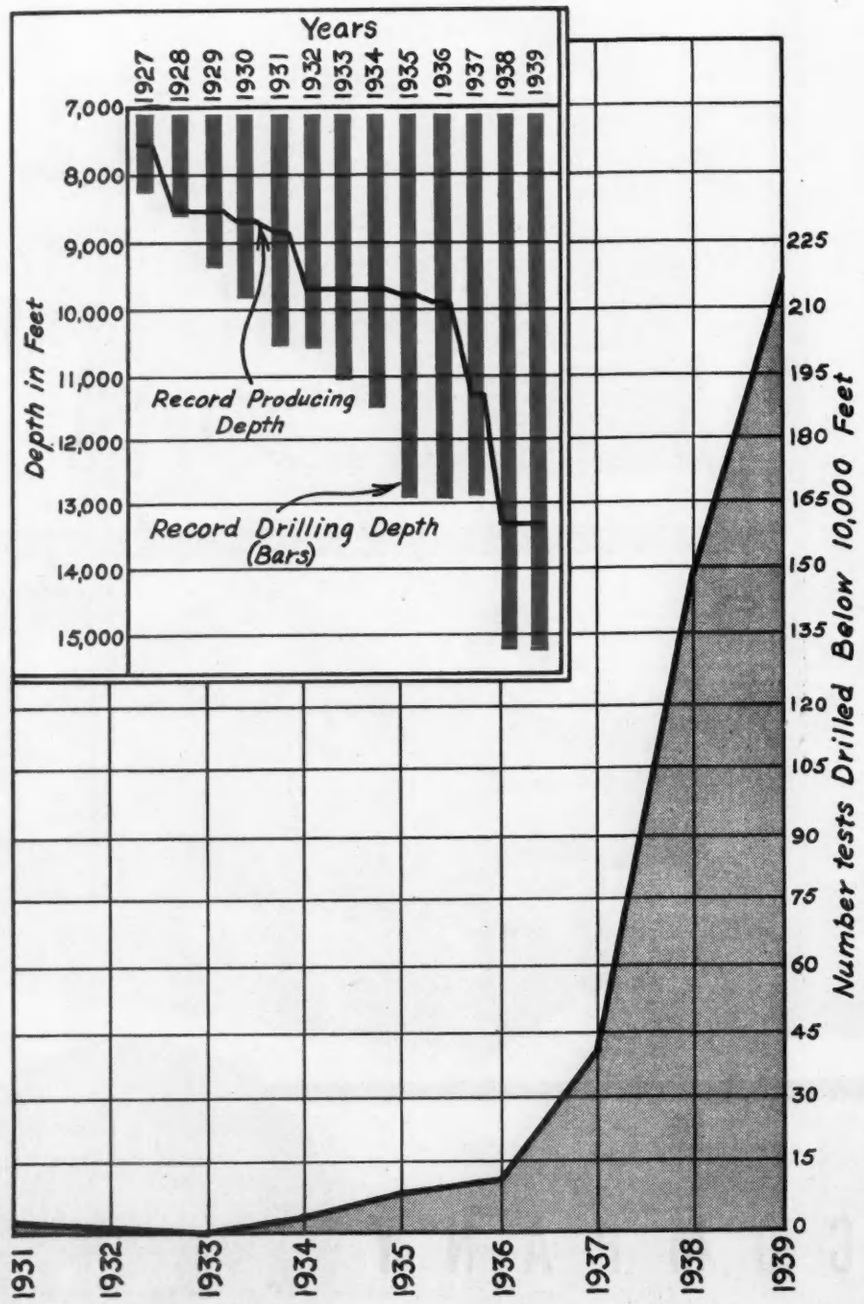
TORRANCE, CALIF.

Rapid Expansion of Deep Drilling Continues

Number of tests carried to 10,000 feet or more during 1939 double volume of all preceding years; indications are that 250 such operations to be drilled during 1940



The remarkable upward annual trend of 10,000-foot drilling is shown by the accompanying graph. Both drilling and producing depth records have increased steadily during the past 13 years, as illustrated on the inset graph.

WHO back in 1935 would have believed that within five years the industry would be drilling 250 tests annually to depths exceeding 10,000 feet? Yet that is likely to occur during 1940, for that is just how rapidly the trend toward drilling to such great depths has surged forward since that time.

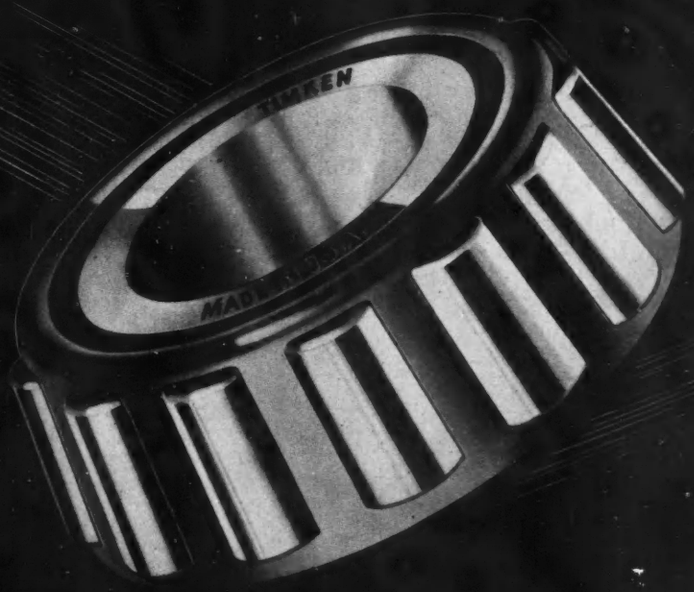
Although the past year failed to see either a new drilling or producing depth record established, it witnessed the drilling of more tests to 10,000 feet or greater than in all previous years combined and the doubling of the number of fields producing from such levels.

There were 218 of these deep tests drilled during 1939, including 173 actually completed and 45 still drilling; in contrast with 211 that had been completed to this level previously. Whereas there were a total of 19 fields yielding production from 10,000 feet at the start of 1939, the year saw 22 more discovered.

Statistics Show Trend

Statistics accurately picture the remarkably rapid expansion in 10,000-foot drilling. Although 72 years of oil industry history had passed before a single test achieved a penetration of 10,000 feet, in the

Smooth IN APPEARANCE



BUT *Tough* AT HEART!

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scant nine years since that occasion (May, 1931), 427 have drilled below that level. Furthermore, of these 427 deep tests drilled to date, 218, or 51 percent, were during 1939; and 361, or 84 percent, have been during the past two years. Three tests were drilled to 10,000 feet in 1931, one in 1932, four during 1934, seven in 1935 and 10 in 1936. This increased to 41 in 1937, when the world's first 10,000-foot commercial production was discovered, and to 143 in 1938 and 218 in 1939.

The foregoing figures show how rapidly the drilling of 10,000-foot tests has expanded in recent years, and indicate it is not amiss to suggest the drilling of 250 holes to such levels during 1940. For it would require the drilling of only 22 more than were drilled in 1939.

Discoveries Incentive Also

Moreover, in addition to the expansion of deep drilling volumes, there are other circumstances that tend to prophesy many such operations during the current year.

Tests Drilled Below 10,000 Feet Doubled

COUNTRY	1931	1932	1934	1935	1936	1937	1938	1939 Comp.	1939 *Drlg.	1939 Total	Total All Years
10,000-Foot Tests:											
United States	2	1	1	5	6	31	78	99	33	132	256
California	1	1	..	1	1	3	12	18	11	29	48
Louisiana	..	..	..	4	2	17	45	48	11	59	127
Texas	..	..	1	..	2	10	20	31	11	42	75
Oklahoma	1	..	..	..	1	1	..	...	...	...	3
North Dakota	..	..	..	..	..	..	1	...	...	...	1
Wyoming	..	..	..	..	..	..	..	1	...	1	1
Colorado	..	..	..	..	..	..	..	1	...	1	1
Other Countries	1	..	..	..	2	1	1	2	...	2	7
Mexico	1	..	..	..	1	..	..	...	...	...	2
Iran	..	..	..	..	1	..	..	...	...	...	1
Canada	..	..	..	..	..	..	1	...	...	...	1
Sumatra	..	..	..	..	..	..	..	1	.	1	1
Germany	..	..	..	..	..	1	..	...	...	...	1
Trinidad	..	..	..	..	..	..	..	1	...	1	1
Total	**3**	**1**	**1**	**5**	**8**	**32**	**79**	**101**	**33**	**134**	**263**
11,000-Foot Tests:											
United States	..	..	2	1	1	4	51	52	8	60	119
California	..	..	1	..	1	1	30	24	2	26	59
Louisiana	..	..	..	..	..	2	15	27	3	30	47
Texas	..	..	..	1	..	1	5	1	3	4	11
Oklahoma	..	..	1	..	..	..	1	...	...	...	2
Other Countries	..	..	1	..	..	..	1	...	...	...	2
Roumania	..	..	1	..	..	..	..	...	...	...	1
Japan	..	..	..	..	..	..	1	...	...	...	1
Total	..	..	**3**	**1**	**1**	**4**	**52**	**52**	**8**	**60**	**121**
12,000-Foot Tests:											
United States	..	..	..	1	1	5	3	13	3	16	26
California	..	..	..	..	..	1	1	2	3	5	7
Louisiana	..	..	..	..	1	4	2	11	..	11	18
Texas	..	..	..	1	..	..	..	...	...	...	1
Other Countries	..	..	..	..	..	..	1	...	...	...	1
Germany	..	..	..	..	..	..	1	...	...	...	1
Total	..	..	..	**1**	**1**	**5**	**4**	**13**	**3**	**16**	**27**
13,000-Foot Tests:											
United States	..	..	..	..	..	..	6	8	1	9	15
California	..	..	..	..	..	..	2	7	1	8	10
Louisiana	..	..	..	..	..	..	3	1	...	1	4
Texas	..	..	..	..	..	..	1	...	...	...	1
Total	..	..	..	..	..	..	**6**	**8**	**1**	**9**	**15**
14,000-Foot Tests:											
United States	..	..	..	..	..	..	1	2	...	2	3
California	..	..	..	..	..	..	1	1	...	1	2
Oklahoma	..	..	..	..	..	..	..	1	...	1	1
Total	..	..	..	..	..	..	**1**	**2**	...	**2**	**3**
15,000-Foot Tests:											
United States	..	..	..	..	..	..	1	...	...	...	1
California	..	..	..	..	..	..	1	...	...	...	1
Total	..	..	..	..	..	..	**1**	...	...	...	**1**
Total Deep Tests:											
United States	2	1	3	7	8	40	140	171	45	216	417
California	1	1	1	1	2	5	47	52	17	69	127
Louisiana	..	..	..	4	3	23	65	84	14	98	193
Texas	..	..	1	2	2	11	26	32	14	46	88
Oklahoma	1	..	1	..	1	1	1	1	..	1	6
North Dakota	..	..	..	..	..	..	1	...	...	...	1
Wyoming	..	..	..	..	..	..	..	1	...	1	1
Colorado	..	..	..	..	..	..	..	1	...	1	1
Other Countries	1	..	1	..	2	1	3	2	...	2	10
Germany	..	..	..	..	..	1	1	...	...	...	2
Mexico	1	..	..	..	1	..	..	...	...	...	2
Iran	..	..	..	..	1	..	..	...	...	...	1
Canada	..	..	..	..	..	..	1	...	...	...	1
Sumatra	..	..	..	..	..	..	..	1	...	1	1
Trinidad	..	..	..	..	..	..	..	1	...	1	1
Roumania	..	..	1	..	..	..	..	...	...	...	1
Japan	..	..	..	..	..	..	1	...	...	...	1
World's Grand Total	**3**	**1**	**4**	**7**	**10**	**41**	**143**	**173**	**45**	**218**	**427**

Outstanding in this connection is the encouragement offered by the success achieved in locating producing fields at these horizons during the past three years. The first commercial 10,000-foot production was not discovered until January, 1937. During that year seven additional fields were found, and 11 were located in 1938. However, 22 were opened during 1939!

In most instances, these newly discovered fields call for additional drilling of deep tests, and now that it has been proved that oil is to be found in paying quantities below 10,000 feet, it is natural to assume that many operations unproductive at shallower horizons will not be abandoned until it is seen if production can be found at deeper levels.

Deep Drilling Worthwhile

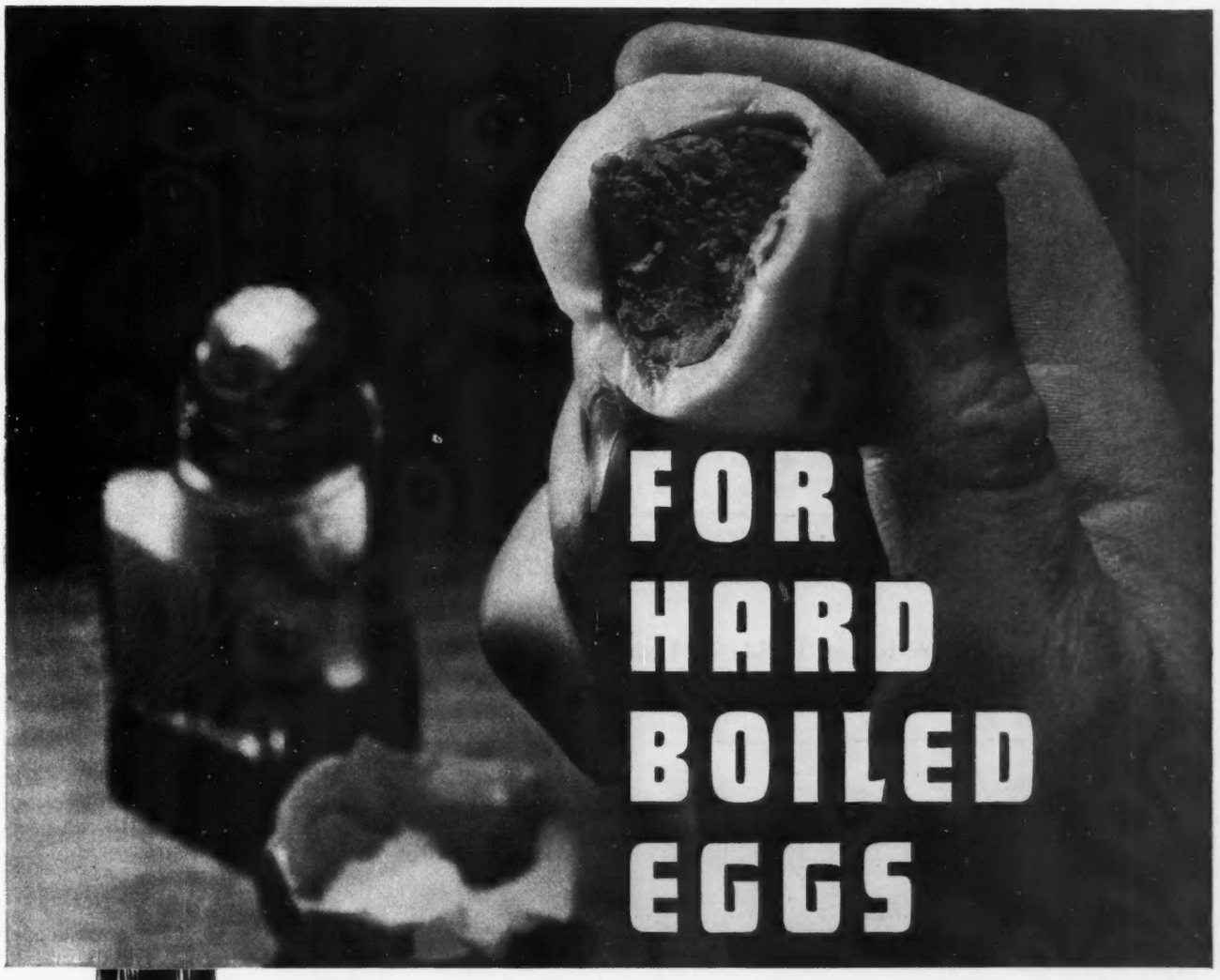
The drilling of 10,000-foot and deeper holes has been proven worthwhile by the discovery of an estimated 673,250,000 barrels of oil in the 41 fields of the United States producing from such levels. It should be borne in mind in considering this figure that many of the fields have so few wells it is practically impossible to gauge their potential value as yet. No doubt most of them will prove more prolific than now indicated, when more fully exploited. A good many of the fields have but one well completed in the deep producing horizon.

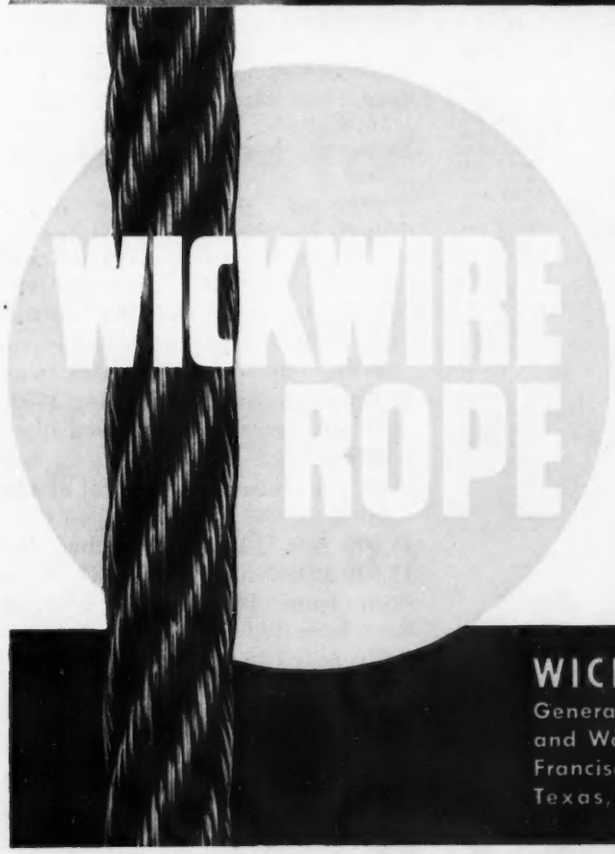
Still, even the present estimates of ultimate yields in these fields is nearly as much as have been found in the current Illinois campaign (roughly 700,000,000 barrels) with the drilling of 6246 tests and 12,098,770 feet of hole. This is nearly 15 times as many wells and close to three times the amount of footage represented by the 427 tests exceeding 10,000 feet. While 57 new fields have been found in Illinois, 41 have been located at 10,000 feet or deeper.

Of the 41 fields in the United States producing from 10,000 feet, 35 have depths between 10,000 and 11,000 feet, 4 from 11,000 to 12,000 feet, and 2 in excess of 13,000 feet.

New Depth Records Probable

Whereas the first test drilled for oil (in August, 1859) was but 69½ feet, the present world's depth rec-





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ord was established in April, 1938, at 15,004 feet, or 215 times as great as the original well.

The deepest test drilled during the past year was Continental Oil Company's Proctor 1, in Washita County, Oklahoma, which attained 14,582 feet. One other test, in California, also drilled to 14,000 feet during the year, and nine went to 13,000 feet.

The past 13 years have seen the deep drilling record nearly doubled, having increased from slightly below 8000 feet to 15,004 feet. And it would not be surprising to see a new depth record established during 1940, although there is no definite assurance of this happening, of course.

As the bit has drilled deeper into the earth, oil also has been found at ever greater depths. Although it was 77½ years after Drake's original oil well before the first 10,000-foot production was procured, the three years since that time has seen the addition of 3000 feet to the deep production record. The past 13 years have witnessed an advancement of 5650 feet in the record for deep production; from 7591 feet in 1927 to the present 13,266 feet at present.

U. S. Drilling and Producing Depth Records by Districts

	DRILLING RECORD		PRODUCING RECORD	
	Feet	Year	Feet	Year
California	15,004	1938	13,175	1938
Oklahoma	14,582	1939	10,125	1935
South Texas	13,728	1938	9,927	1938
South Louisiana	13,409	1938	13,266*	1938
West Texas	12,786	1935	8,923	1930
Texas Gulf	11,612	1937	10,961	1939
North Louisiana	11,486	1937	....	....
East Texas Border	11,303	1938	....	....
Colorado	10,815	1939	6,704	1932
North Dakota	10,281	1938	None	....
East Texas	10,275	1938	8,170	1939
Wyoming	10,003	1939	10,003	1939
West Virginia	9,104	1931	6,004	1939
Arkansas	9,020	1939	....	....
North Texas	8,331	1936	5,400	1939
Montana	8,186	1936	8,186	1936
Texas Panhandle	8,013	1934	3,600	....
New Mexico	7,957	1939	6,771	1929
South Dakota	7,800	1939	None	....
Kansas	6,909	1931	6,481	1936
Michigan	6,674	1935	....	....
Illinois	6,553	1939	3,520	1939
West Central Texas	5,646	1932	4,490	1934

* World's deepest production.

10,000-Foot Producing Fields in United States

FIELD AND COUNTY	Year Found*	Average Depth	Ultimate† Recovery
California:			
Paloma, Kern County	1939	10,175	No Est.
Coles Levee, Kern County	1939	10,010	62,000,000
Greeley, Kern County	1938	11,500	75,000,000
Kettleman North Dome, Kings and Fresno Counties	1938	10,810	40,000,000
Rio Bravo, Kern County	1937	11,500	120,000,000
Ventura Avenue, Ventura County	1937	10,500	87,500,000
Long Beach, Los Angeles County	1938	10,150	2,500,000
Wasco, Kern County	1938	13,175	5,000,000
Louisiana Gulf Coast:			
DeLarge (Dulac), Terrebone Parish	1938	13,265	5,000,000
Horseshoe Bayou, St. Mary Parish	1939	11,847	included below
Horseshoe Bayou, St. Mary Parish	1937	10,900	10,500,000
Bay Baptiste, Terrebone Parish	1938	11,178	1,000,000
La Pice, St. James Parish	1939	10,915	500,000
Bateman Lake, St. Mary Parish	1937	10,905	2,000,000
Bateman Lake, St. Mary Parish	1939	10,663	1,000,000
Kennilworth, St. Bernard Parish	1939	10,610	1,000,000
Venice, Plaquemines Parish	1939	10,610	10,000,000
Lake Barre, Terrebone Parish	1938	10,520	500,000
Abbeville, Vermilion Parish	1939	10,535	No Est.
Lirette, Terrebone Parish	1937	10,500	1,500,000
Jeanerette, St. Mary Parish	1939	10,485	included below
Jeanerette, St. Mary Parish	1938	10,200	500,000
Lake Long, Lafourche Parish	1939	10,260	included below
Lake Long, Lafourche Parish	1937	10,400	4,000,000
Paradis, St. Charles Parish	1939	10,340	15,000,000
South Houma, Terrebonne Parish	1938	10,310	2,000,000
Lafitte, Jefferson Parish	1937	10,265	100,000,000
Vermilion Bay, Iberia Parish	1939	10,241	2,000,000
Raceland, Lafourche Parish	1938	10,200	5,000,000
Lafourche Crossing, Lafourche Parish	1939	10,132	2,000,000
Ville Platte, Evangeline Parish	1939	10,245	included below
Ville Platte, Evangeline Parish	1939	10,157	included below
Ville Platte, Evangeline Parish	1939	10,085	15,000,000
South Roanoke, Jeff Davis Parish	1939	10,120	1,000,000
Golden Meadows, Lafourche Parish	1939	10,040	500,000
Texas Gulf Coast:			
League City, Galveston County	1939	10,961	No Est.
Old Ocean, Brazoria County	1939	10,180	included below
Old Ocean, Brazoria County	1937	10,670	100,000,000
Anchor, Brazoria County	1939	10,466	1,000,000
Wilson Creek, Matagorda County	1938	10,058	250,000
Wyoming:			
Pinedale, Sublette County	1939	10,003	Gas

Summary

	1937	1938	1939	Total
Fields found 10,000—11,000 feet	7	7	21	35
Fields found 11,000—12,000 feet	1	2	1	4
Fields found 12,000—13,000 feet	....	....	....	....
Fields found 13,000—14,000 feet	....	2	....	2
Total fields found	8	11	22	41
Average depth of fields (feet)	10,705	11,098	10,412	10,738
Estimated ultimate recovery† (Barrels)	425,500,000	136,750,000	111,000,000	673,250,000

* Year sands below 10,000 feet proven productive.

† Many of the fields, particularly those found during 1939, have so few wells it is practically imposible to estimate ultimate recoveries. No doubt most of these fields will prove more prolific than figures here indicate.

Mostly in United States

Most of the 10,000-foot or deeper holes have been drilled in the United States, where 417 of the 427 in the world are located. Mexico and Germany have furnished two deep tests each, while Roumania, Iran, Canada, Trinidad, Japan and Sumatra have completed one apiece.

Whereas the deepest depth drilled in the United States is 15,004 feet, the greatest penetration in other countries is 12,726 feet reached by a German test during 1938.

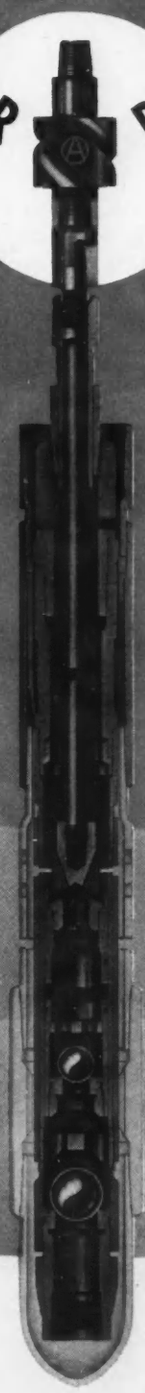
While the United States was drilling 216 deep tests during 1939, only two were being drilled elsewhere.

Of the United States total of 417 deep tests, 263 have been less than 11,000 feet, 121 have reached the 11,000-12,000-foot class; 27 have been from 12,000-13,000 feet; 3 have been 14,000-foot holes; and 1 has reached 15,000 feet.

Louisiana Leading Sector

Within the United States, Louisiana is the leading deep drilling contributor by a wide margin. This state has had 193 tests go to 10,000

A LITTLE THING TO LOOK FOR BUT A BIG THING TO FIND



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Sixteen Deepest Drilled Tests in World

(As of January 1, 1940)

Year	Company, Well, Location	Feet
1938	Continental Oil Company's KCL A-2, Wasco field, Kern County, California	15,004
1939	Continental Oil Company's Proctor 1, Washita County, Oklahoma	14,582
1939	Continental Oil Company's D-2, Bellvue area, Kern County, California	14,051
1938	Superior Oil Corporation's Helbling 1, Rio Bravo field, Kern County, California	14,018
1939	Shell Oil Company's KCL B-87-4, Canal field, Kern County, California	13,957
1939	Shell Oil Company's Canal B-87-14, Canal field, Kern County, California	13,862
1938	Union Producing Company's Brown 1, Agua Dulce field, Nueces County, South Texas	13,728
1938	Standard Oil Company's KCL 8-B-1, Wasco field, Kern County, California	13,716
1938	Continental Oil Company's KCL A-4, Wasco field, California	13,644
1939	Standard Oil Company's Elrich Community 1, Greeley field, Kern County, California	13,538
1938	Fohs Oil Company's Bourg 1, DeLarge field, Terrebone Parish, South Louisiana	13,409
1939	Fohs Oil Company's Buckley-Mahler 1, DeLarge field, South Louisiana	13,248
1939	Standard Oil Company's Mushrush 1, Wasco field, California	13,139
1939	Geo. F. Getty's Janssen 1, Wasco field, California	13,131
1939	Superior Oil Company's KCL-12, Rio Bravo field, California	13,131
1939	Standard Oil Company's Mushrush 2, Wasco field, California	13,124

feet, while California has had 127, Texas 88 and Oklahoma 6. The others have been in North Dakota, Wyoming and Colorado.

Louisiana also leads in 10,000-foot producing fields, having discovered 27 sources of supply. California again ranks second, with 8; while Texas has 5 and Wyoming 1.

California Drills Deep

While California ranks second in total volume of 10,000-foot drilling, it is the first ranking area for super-deep operations. It is the site of the world's deepest penetration —15,004 feet attained in 1938—and the home of two of the three 14,000-foot tests that have been drilled. Moreover, it has accounted for 10 of the holes drilled to 13,000 feet.

Louisiana takes the lead in 12,000-foot tests, with 18 to California's 7. However, California, again is in the front at 11,000 feet, with 59 to Louisiana's 47. It is in the 10,000-foot class that Louisiana gains its mark in total deep tests, having 127 to Texas' 75 and California's 48.

New District Records

Further indicative of the general trend toward deeper drilling is the number of new district depth records established in the United States during the past year. Many of these are less than 10,000 feet in depth, but nevertheless the new records show that states not yet receiving 10,000-foot testing are going deeper in their search for oil.

While 1939 failed to establish either a new deep drilling or producing record, a total of 7 new state or district drilling records were attained, while six new producing depth records were made.

Trend Significant

The ability to drill to these great depths is an indication of improved practices and equipment. The remarkable regularity with which deep holes are being drilled is indicative that recent years have witnessed important improvements in both equipment and methods. Deeper drilling is the result of engineering, which has developed improved metals, heavier and sturdier equipment, advanced methods and practices.

Today tests are being drilled to 10,000, 11,000, 12,000 and 13,000 feet with such regularity that they attract no more attention than did 7000 and 8000 feet 10 years ago.

The actual scientific value of drilling to 10,000 and 15,000 feet is of considerable importance. Each deep test contributes to the advancement of drilling technique to a higher plane. They are to drilling men what the Indianapolis speedway contest claims to be to the automobile manufacturers. The earlier 10,000-foot tests showed petroleum and mechanical engineers the problems encountered at such depths, and resulting improvements in drilling practices and machinery have made it easier and safer for others to reach these levels; and enhance the chance of even greater records.

Deeper Tomorrow

Literally, today's deepest tests are likely to be an "also ran" tomorrow, and each year will see the drilling of a larger number of holes that exceed 10,000 feet. The practicability of such operations, from both an economic and mechanical standpoint, has been proved during the past three years; which prompts us to repeat that 250 of these deep tests are likely to be drilled during 1940.

Record-Holding Producing Wells at End of Each Year Since 1927

Year		Feet
1927	E. J. Miley's Athens 6, Rosecrans field, Calif.	7,591
1928	Texon Oil and Land Company's University 1-B, Big Lake field, West Texas	8,523
1930	Star Petroleum Company's Colby 2, Long Beach, Calif.	8,550
1931	Tide Water Associated Oil Company's Lloyd 57, Ventura Avenue, Calif.	8,823
1932	Tide Water Associated Oil Company's Lloyd 83, Ventura Avenue, Calif.	9,710
1935	Tide Water Associated Oil Company's Lloyd 131, Ventura Avenue, Calif.	9,836
1936	The Texas Company's Lafitte 5, Lafitte field, Southern Louisiana	9,950
1937	Union Oil Company's Kernco 1-34, Rio Bravo field, Kern County, Calif.	11,302
1938	Fohs Oil Company's Bourg 1, West Dulac field, Southern Louisiana	13,266

Record-Breaking Depth Tests Drilled Since 1927

(Includes both dry and producing wells)

Year		Feet
1927	Chansler-Canfield-Midway Oil Company's Olinda 96, Olinda, California	8,046
1928	Texon Oil and Land Company's University 1-B, Big Lake, West Texas	8,523
1929	Shell Oil Company's Nesa 1, Long Beach, California	9,280
1930	Standard Oil Company of California's Mascot 1, Midway, California	9,753
1931	Chansler-Canfield-Midway Oil Company's Hobson A-2, Rincon field, Ventura County, California	10,030
1931	Penn-Mex Fuel Company's Jardin 35, State of Vera Cruz, Mexico	10,585
1933	North Kettleman Oil & Gas Company's (later taken over by Union Oil Company) Lillis-Welch 1, Kettleman Hills, Kern County, California	10,944
1934	General Petroleum Corporation's Berry 1, Belridge, Kern County, California	11,377
1935	Gulf Oil Corporation's McElroy 103, Gulf-McElroy, Upton County, West Texas	12,786
1938	Continental Oil Company's KCL A-2, Wasco, Kern County, California	15,004

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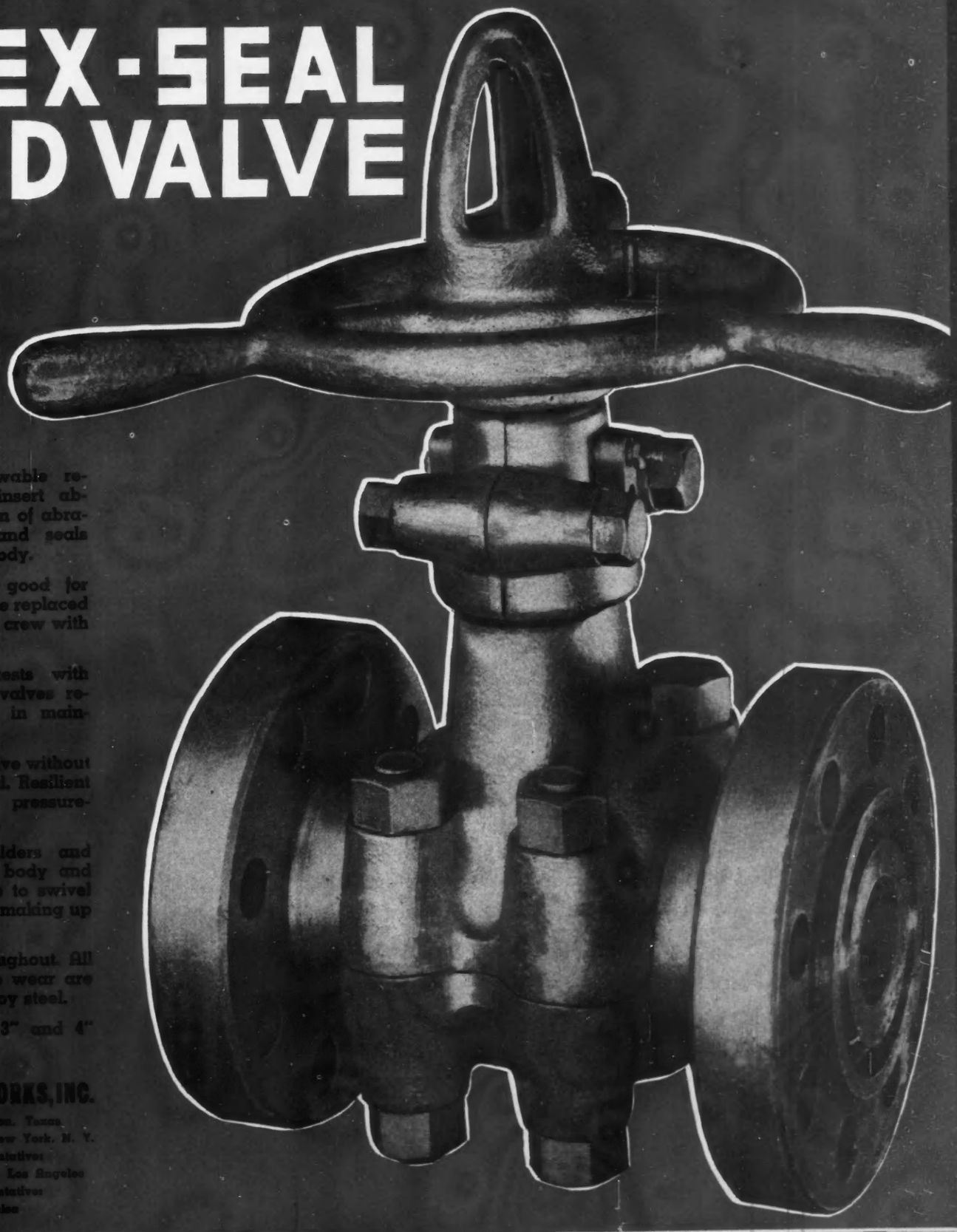

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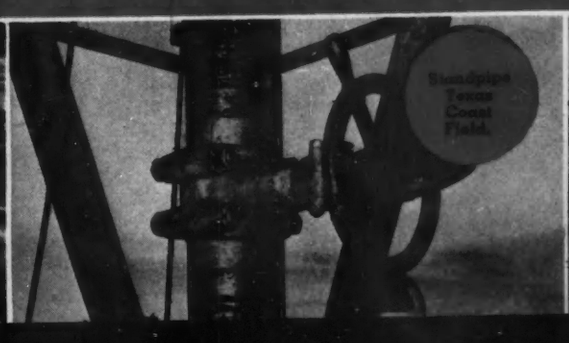


Better Earnings Are Anticipated In 1940

Improvement in both volume of business and prices promise higher earning power

By L. J. LOGAN, Associate Editor

AFTER having experienced a set-back of around 15 to 20 percent in earning power in 1939, which lowered profits to a medium level, oil companies probably will show better results in 1940.

Improvement in earnings is promised by both of the two main factors that affect profits, namely, volume of business and prices.

Demand Outlook Good

It is anticipated that demand for petroleum products and similarly for crude oil will further increase around 5 percent in 1940. Consequently, all divisions of the industry have the prospect of record volumes of business for the year. That substantial increase may mean much in stimulating earnings. Nearly all companies showed some profit in 1939, the results for some having been relatively good; and added volumes of business, handled with moderate increases in costs, would materially expand profits.

Crude Oil Market

The outlook is less clear in so far as prices are concerned, but it probably is not over-optimistic to expect the markets to be as good as in 1939, or better.

Crude oil prices, particularly, appear safe for several months, after which they possibly may show some improvement. As they now stand, the postings are somewhat better than the average for 1939, as they embrace the sharp gains in recent months in Pennsylvania-grade crude and the small increases meanwhile in Southwest Texas, The Texas Gulf Coast, and several other districts of the Mid-Continent. The average price of crude in the United States in 1939 was about 98 cents a barrel, but it now is probably around $1. It is conceivable that the gasoline market, now weakened by surplus stocks, might ultimately have a depressing effect on the crude market. But if the gasoline situation is kept in hand, the principal threat to the crude market will be minimized. It is indicated, therefore, that solely producing companies and integrated companies well situated with producing properties should have particularly good earnings in 1940, with production greater and prices favorable.

Product Prices

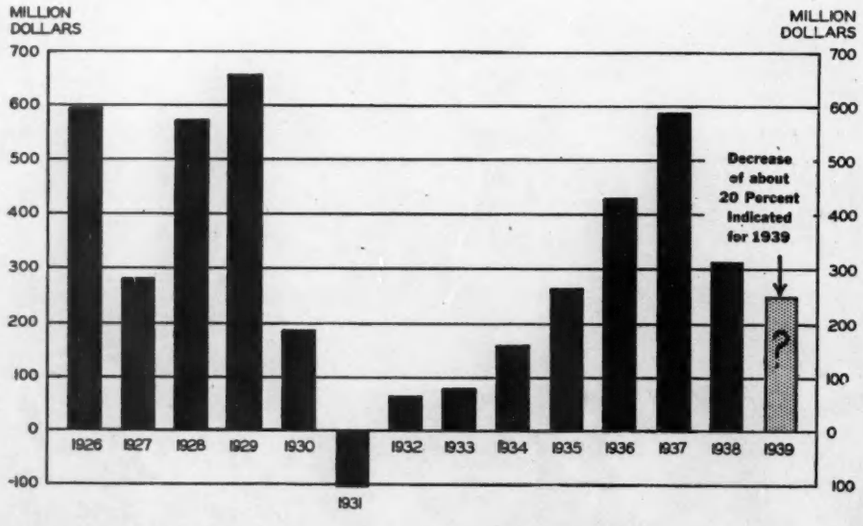
Refined product prices reflect contrasting situations. Gasoline, the industry's principal product, offers cause for serious concern, prices having fallen back well toward the extreme low levels of last spring, because of surplus stocks. Few oil company executives expect gasoline prices to be much, if any, better in 1940 than in 1939. Some are of the opinion that they will be about the same, and some think the average price will be even lower, while others hesitate to hazard an opinion, because they feel that the outlook is obscured by the European wars and various disturbing factors in the domestic situation.

On the other hand, prices of lubricants and fuel oils are materially better now than a year ago, because of brisk industrial activity and the wars; and it is generally believed that the prices of those products will continue about the same as now or improve in 1940, indicating betterment of average prices for the year, as compared with those in 1939.

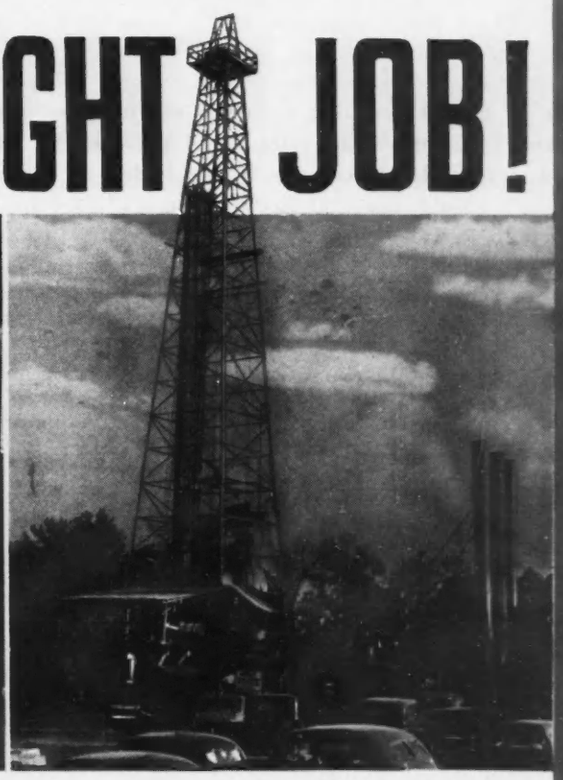
Although figures are not yet available on results in the final

Although Oil Company Profits Declined Further in 1939, Improvement Is Promised for 1940

Chart is based on profits and losses of 44 U. S. oil companies



TALK ABOUT A TIGHT JOB!



Photos above show Lisbon Exploration Company's Roberta Vaughn No. 1 in Lisbon Field, Clebourne Parish, Louisiana. Read interesting story in an early issue of *Oil and Gas Journal*.

Clearances So Close That Couplings On The Casing Had To Be Machined!

BUT *Inferno* CAME THROUGH IN THE PINCH!

● 7-inch casing had been set at 5295 feet in an old well in the Lisbon Field. It was decided to make a deep test on the same location . . . the Roberta Vaughn No. 1 of the Lisbon Exploration Company, Inc. Here a 6¼-inch hole was drilled through to 8900 feet. 5-inch casing was run to 8884 feet. *Clearances were so close that couplings on the casing below 5295 feet had to be machined down from 5¾ inches to 5⅜ inches!*

This well was cemented with TRINITY *Inferno*. Slurry was pumped down, and the plug bumped in 25 minutes. Maximum pressure required was only 800 pounds above normal circulating pressure. Low water-cement ratio slurry. Bottom hole temperature, 208 degrees.

Mr. Paul D. Torrey, chief engineer on the job, was enthusiastic about the results and said, "We have every evidence that the cement set uniformly with a dense, hard sheath around the casing. Subsequent shooting showed no channeling and an even distribution."

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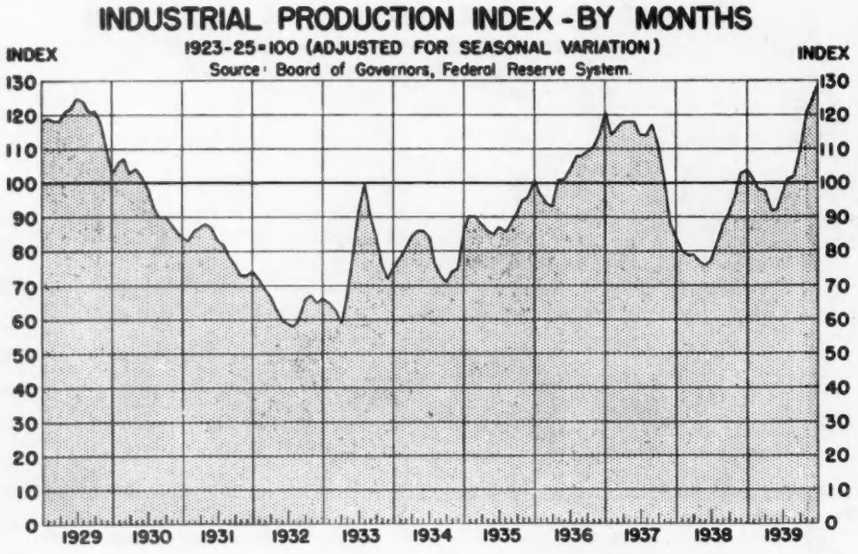
As in recent months, volumes of business and earnings of oil companies likely will be stimulated in 1940 by high levels of industrial activity. Federal Reserve Board index of industrial output in United States rose from 120 in October and 124 in November to new high of 128 in December.



quarter, it is indicated that profits of oil companies aggregated about 15 to 20 percent less in 1939 than in 1938. Earnings were unsatisfactory in the first half of 1939, because of low product prices, lagging demand, and restricted crude production. But they improved sharply in the third quarter, in response to seasonal and extraordinary expansion of demand and better prices. With exception of gasoline quotations, the prices of products continued to advance in the last three months of 1939, and demand remained good, with the result that the final quarter was the most profitable of the year. The closing period did much toward making earnings of 1939 compare favorably with those of 1938. Some companies, although in the minority, are expected to show somewhat more profit for 1939 than for 1938. A few were able to report improvement in 1939 even for the first 9 months.

Oil Company Earnings Somewhat Smaller in 1939 Than in 1938, Despite Improvement in Latter Portion of Year; Dividends Well Maintained; Prices of Securities Slightly Lower

Including data on a group of representative oil companies, this table affords a cross-section of recent financial results and trends in the industry. The table is based on information published in the "Monthly Oil Review" of Carl H. Pforzheimer & Company

COMPANY	Price Range 1937 High	1937 Low	1938 High	1938 Low	1939 High	1939 Low	1939 Last	Earnings per Common Share: Year's Earnings 1937	Year's Earnings 1938	Interim Earnings Period	Interim 1938	Interim 1939	Dividends per Common Share 1937	Dividends 1938	Dividends 1939	Capitalization (See Note) Com. Shares Outstanding
Amerada Corp.	114⅞	51½	78	55	74½	50	54½	3.04	2.07	9 mos.	1.72	0.99	2.00	2.00	2.00	788,675
Atlantic Refining	37	18	27⅜	17¾	24⅞	18⅛	20⅞	3.51	1.40	9 mos.	1.31	1.01	1.00	1.00	1.00	2,663,999
Barnsdall Oil Co.	35¼	10	21⅜	10⅛	19½	11⅛	12⅜	0.85	1.26	9 mos.	1.16	0.56	1.00	1.00	0.90	2,250,344
Buckeye Pipe Line	51½	36	39	22½	34¾	26½	28⅛	4.02	2.36	.....	....	....	3.75	2.00	2.50	200,000
Consolidated Oil	17⅛	7	10¾	7	9⅞	6½	7½	1.48	0.55	6 mos.	0.28	[2]0.06	0.90	0.80	0.80	13,751,846
Continental Oil	49	24	35¾	21¼	31½	19⅞	23¼	2.98	1.10	9 mos.	1.23	0.87	1.50	1.00	1.00	4,682,578
Creole Petroleum	38¾	20¼	27½	17½	28	16¾	22¼	1.61	1.64	.....	....	....	1.00	1.00	1.00	6,975,383
Eureka Pipe Line	47½	24½	31	16	23	15⅛	23	[2]0.12	[2]0.37	.....	....	....	4.00	3.00	2.00	50,000
Gulf Oil Corp.	63½	33	46⅞	33	45½	29¼	38½	3.51	1.43	.....	....	....	1.00	1.00	1.00	9,076,202
Houston Oil	17⅝	4¾	9¾	5	9⅜	4½	5⅞	0.94	0.83	.....	....	....	....	....	....	1,098,618
Humble Oil & Refg.	87	54⅞	72⅝	56	71	52½	65¾	5.22	3.98	.....	....	....	2.00	2.00	2.00	8,987,840
Lion Oil Co.	34	12½	25⅛	15⅝	20¼	10	12⅛	2.17	2.09	9 mos.	2.26	0.87	1.50	1.00	1.00	435,815
Mid-Continent Pet.	35⅝	14	22⅝	12¼	18	11⅛	15¾	2.86	0.56	9 mos.	0.81	0.60	1.50	0.60	0.60	1,857,912
Midwest Oil Co.	14⅝	6¼	9¾	6⅜	8¾	6⅜	7⅜	[3]1.14	0.93	6 mos.	0.51	0.37	1.00	1.00	0.90	998,474
Mountain Producers	7⅞	4½	5¾	4½	6	4⅞	5½	0.76	0.62	.....	....	....	0.60	0.60	0.60	1,593,584
National Transit	12½	7¼	9¼	6½	9½	7¼	9¼	1.19	0.88	.....	....	....	1.00	0.75	0.85	509,000
New York Transit	5⅜	3⅞	4½	3½	6	4	5½	0.49	0.16	.....	....	....	1.00	0.25	0.40	100,000
Ohio Oil Co.	22⅞	9	14⅞	8⅞	10⅛	6	6⅝	1.31	0.25	9 mos.	0.23	[2]0.22	1.00	0.20	....	6,563,377
Pacific Western	29¾	11¾	15⅞	10¼	11⅞	7	7¼	1.39	1.22	9 mos.	1.07	0.53	0.75	0.50	0.40	1,000,000
Phillips Petroleum	64	30½	44⅝	27¼	46½	31¼	41½	5.42	2.03	9 mos.	2.13	1.23	2.75	2.00	2.00	4,449,052
Plymouth Oil Co.	29⅞	13	25⅝	15	24	17⅛	20⅝	2.85	2.59	9 mos.	1.97	1.64	1.65	1.40	[5]1.40	1,023,076
Pure Oil Co.	24⅝	8¾	13½	8¼	11¾	6⅛	8¼	2.15	0.38	6 mos.	0.02	0.12	0.25	....	0.25	3,982,031
Richfield Oil Corp.	6½	4½	9⅞	5	10¼	6⅝	[7]7¾	0.35	0.51	9 mos.	0.35	0.46	0.25	0.50	0.50	4,010 000
Seaboard Oil Co.	54½	16	27½	15½	24⅝	15½	19	1.97	1.52	9 mos.	1.09	0.94	1.00	1.00	1.00	1,244,383
Shell Union Oil	34¾	14⅞	18⅝	10	17¼	9⅞	[1]12⅝	1.44	0.72	9 mos.	0.61	0.41	1.00	0.70	0.50	13,070,625
Skelly Oil Co.	60⅝	26½	34¾	18½	29½	15½	19½	6.07	2.27	9 mos.	1.69	1.08	1.50	1.00	0.75	995,349
Socony-Vacuum	23¾	13	16⅝	10¾	15⅛	10¼	12⅛	1.82	1.29	6 mos.	0.64	0.54	0.80	0.50	0.50	31,206,071
South Penn Oil Co.	56	35	39	28¾	40½	26¾	40¼	4.64	1.44	6 mos.	0.85	0.89	3.65	1.75	3.00	1,000,000
South West Pa., P. L.	42	20	22¼	16½	23	17	22	0.95	[2]0.41	.....	....	....	2.00	2.00	2.00	35,000
Standard Oil, Calif.	50	27⅛	34⅞	25⅛	33⅝	24¼	24⅞	3.17	2.22	9 mos.	1.84	0.97	2.00	1.40	1.10	13,004,153
Standard Oil, Indiana	50	26½	35½	24⅜	30	22¾	26⅝	3.66	1.82	6 mos.	1.16	0.98	2.30	1.00	1.25	15,272,020
Standard Oil, Kentucky	21½	14⅜	18¾	15	20½	17¼	20	1.60	1.45	.....	....	....	1.50	1.25	1.30	2,604,797
Standard Oil, New Jersey	76	42	58⅜	39¾	53½	38	43⅞	5.64	2.86	.....	....	....	2.50	[7]1.50	[6]1.25	26,618,064
Standard Oil, Ohio	45	16	22¾	16¼	32¾	17	31¾	3.67	1.81	.....	....	....	1.50	1.00	1.50	753,740
Sun Oil Co.	77½	44½	65⅛	45	66	45¾	57¾	3.86	1.07	6 mos.	0.63	0.34	[4]1.00	1.00	1.00	2,316,484
Texas Corp.	65⅛	34¾	49⅝	32⅜	50¾	32½	[1]44½	5.02	2.13	.....	....	....	2.25	2.00	2.00	10,876,882
Texas Pacific Coal & Oil	16⅝	5⅜	12½	7	11⅜	7	8⅛	1.11	1.16	9 mos.	0.70	0.88	0.40	0.40	0.40	888,236
Tide Water Associated	21⅝	13⅓	15¾	10⅛	14¼	9½	10⅝	2.08	1.28	9 mos.	1.05	0.42	1.20	1.00	0.80	6,376,560
Union Oil of California	28¼	17½	22½	17⅛	19¾	15⅛	16¼	2.58	1.47	9 mos.	1.37	0.98	1.40	1.20	1.05	4,666,270

[1] Ex-dividend. [2] Deficit. [3] Excludes non-recurring losses. [4] Also 8 percent in stock. [5] Also 4 percent in stock. [6] Also 2½ percent in stock. [7] Also 1½ percent in stock.

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Sharp Increase In Pumping Installations Indicated

Survey indicates that 15,358 wells slated to go on the pump during 1940 will require $25,000,000 worth of new equipment

By BRAD MILLS, Associate Editor

INDICATED expenditures for pumping equipment during 1940 show a decided upward swing from 1939, the total for new installations and maintenance to approximate $45,856,000. A thorough survey by producing states was made to determine the number of wells that should go on the pump this year, the percentage of such wells to use new equipment, and the maintenance for all pumping wells.

The 15,358 wells slated for the pump will require more than $25,000,000 worth of new equipment. In arriving at this total, old equipment due for re-use was excluded. For every 100 wells to go on the pump in 1940, only 70 to 75 wells will use new equipment. In some districts, as high as 95 percent of total wells to go on the pump will use new equipment, while in a few shallow districts new equipment will not be used on more than 15 percent of pumping wells.

As a rule, pumping equipment is chiefly re-used in the old, shallow areas where abandonments roughly equal wells going on the pump. In the deeper producing districts, suitable used equipment is not available in quantities to meet demands imposed by new pumping wells.

In Pennsylvania, New York, Ohio and other Eastern states old equipment is pressed into service with good results. When the demand for oil is good and abandonments are reduced, new equipment sales jump materially even in these old settled areas. It is believed that the percentage of wells using new equipment in Eastern states will be higher this year than last.

In such states as Kansas, New Mexico, California and Louisiana most of the wells going on the pump will use new equipment. Where the trend in a state is toward deeper pumping production, new and heavier equipment must necessarily be added to meet more stringent operating conditions. Rods, pumps and surface equipment used in shallow wells are unsuited for service in deep wells.

The service life of pumping equipment is shorter in the corrosive areas than in the more favorable producing districts. Equipment used under strenuous conditions also wears out faster than lighter equipment in the very shallow areas. Thus replacements are more frequent and more expensive in the deeper producing districts than in the shallow fields.

California Prospects

The California estimate of 623 wells to go on the pump in 1940 was based on the number placed on the pump in 1939, new wells to be drilled in 1940, and surveys of flush fields now ready for increased pumping activity. Average well maintenance in this state is higher than Mid-Continent, Rocky Mountain, Gulf Coast or Eastern states, the cost of upkeep ranging from $80 to $500 and averaging about $250 annually for the 14,400 pumping wells in the state. The average cost for equipping a pumping well in California is about $5300, including rods, tubing and pump. About 67.5 percent of wells going on the pump in 1940 will use new equipment.

Oklahoma and Kansas pumping operations are similar from an average cost standpoint. The 1000 wells due for the pump in 1940 in Oklahoma will cost about $1,050,000 to equip, since only 30 percent will use new equipment. The aver-

Estimated Expenditures on Pumping in 1940

STATE	Number of Wells	Indicated New Installations	Estimated Maintenance	Total
Arkansas	75	$ 410,000	$ 200,000	$ 610,000
California	623	2,228,175	3,600,000	5,828,175
Eastern States except Illinois	3,769	1,342,225	5,448,000	6,790,225
Illinois	2,400	5,228,300	914,100	6,142,400
Kansas	900	2,520,000	1,680,000	4,200,000
Oklahoma	1,000	1,050,000	4,050,000	5,100,000
Rocky Mountain States except New Mexico	193	307,500	422,400	729,900
New Mexico	275	873,750	62,000	935,750
Texas:	5,138	9,858,000	3,643,000	13,501,000
Eastern Texas	1,355	3,179,000	247,000	3,426,000
South Texas	1,462	2,034,000	870,000	2,904,000
Texas Gulf Coast	150	375,000	300,000	675,000
Texas Panhandle	400	750,000	420,000	1,170,000
West Texas	705	2,300,000	366,000	2,666,000
Central West Texas	166	330,000	440,000	770,000
North Texas	900	890,000	1,000,000	1,890,000
Louisiana	345	961,500	250,000	1,211,500
North	200	750,000	200,000	950,000
South	145	211,500	50,000	261,500
Michigan	640	627,200	180,000	807,200
	15,358	$25,406,650	$20,449,500	$45,856,150

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age new pumping installation costs $3500 in this state. Average maintenance cost is about $75 for some 55,600 wells, or a total of $4,050,000.

The 900 wells due for the pump in Kansas in 1940 will cost about $2,520,000 to equip, the indicated number of wells using new equipment being about 80 percent. The average pumping installation costs around $3500. Average well maintenance in this state is about $80 for the 21,000 wells.

Texas Outlook

Pumping conditions in Texas vary radically. The cost of equipping a well for pumping ranges from $1000 in the shallow districts to $6000 in the deeper areas. In the East Texas field, the equipment cost ranges from $2500 to $4000, but an average of $3500 is indicated. Some of the deep Gulf Coast and South Texas wells cost as much as $7000 to equip, depending on the type of installation used. North Texas and Panhandle pumping installations cost from $1000 to $4000, but the average for the former is around $1700 and for the latter $2500. Average maintenance cost for North Texas wells is around $60, while the Panhandle average is about $100 per well. It is indicated that North Texas wells going on the pump in 1940 will use 62½ percent new equipment, while in the Panhandle the new equipment demand will be around 75 percent.

West Texas equipment requirements indicate that 87½ percent of the 705 wells due for the pump in 1940 will take new equipment, the average installation cost being around $3700. Maintenance cost in this area averages around $100 per well for 3600 pumpers. West Central Texas will equip a small number of wells for pumping in 1940, but the percentage of new equipment used will be high, or around 80 percent. Maintenance in this district is nominal, averaging around $60 per well. About 1200 wells are indicated for the pump in the East Texas field proper.

Louisiana and Arkansas will supply some interesting pumping activity during the year. Deep well installations in these states show a very high average initial cost, a range of $5000 to $11,000 being conservative. The new deep production in both states will be reflected in expensive pumping installations in several fields. Rodessa, Shuler-Jones, Buckner, and Miller County, Arkansas, will account for some of the costliest installations in the United States. Shallow wells in both states, however, reduce the average maintenance to a point in line with other states, or about $80 in Arkansas and North Louisiana, and around $150 for South Louisiana.

Illinois Major Area

Illinois has become a major pumping state for the second time, the recent drilling activity having been reflected in a record rush for new equipment. The largest operator last year spent nearly $2,000,000 for pumping equipment. Of the 1950 wells slated for the pump in 1940, it is indicated that more than 95 percent will install new equipment. The 550 Devonian wells due for the pump will be equipped at an average cost of $3400, while the 1850 shallower wells will have an average cost of $1900. Indicated expenditures for new equipment total $5,228,300, while total maintenance for the 18,000 odd wells will be around $914,000, or $50 per well. Most of the new Illinois completions go on the pump immediately, while the stronger wells usually have a short flowing life. Pumping equipment sold in this state is up-to-date and above the average for other Eastern states.

The Eastern states present an interesting pumping picture for 1940. The indicated number of wells due for the pump in Pennsylvania in 1940 is 1980, of which about 40 percent will be equipped with new installations at an average cost of $800, or a total outlay of about $630,000. Maintenance of the state's 81,600 wells at $30 per well gives a tidy total of $2,448,000.

Around 1000 wells are scheduled for the pump in New York in 1940, of which about 40 percent will be newly equipped at $800 per well. Maintenance of the state's 20,400 wells at $30 per well will total $612,000. Ohio should place about 283 wells on the pump at an average new installation cost of $900 for the 25 percent that require new equipment. Indiana is in line for placing 162 wells on the pump, of which about 85 percent will need new equipment at $1500 per well. Kentucky and West Virginia will place about 361 and 125 wells, respectively, on the pump, of which about half will be equipped with new installations at average costs of $800 and $2000, respectively.

Indicated number of wells due for the pump in Michigan in 1940 is 640, of which about 70 percent will be equipped with new installations at an average cost of $3000 for 3000-foot producers, and $1000 for the shallow wells.

Pumping installations in the Rocky Mountain states cost from $1000 in the shallow fields of Montana and Wyoming to $5000 in the deep fields of New Mexico. New Mexico has the highest percentage of flowing wells of any state with a producing record of several years.

The cost of placing a well on the pump ranges from 75 cents per foot of hole, in the very shallow districts, to about $1.25 per foot. The United States average is around $1.00 per foot of hole. This means that a 1000-foot well in Ohio or New York may be placed on the pump for $750, while a 6000-foot well in North Louisiana or California may require an expenditure of $10,000 for pumping equipment. A 3600-foot East Texas field well may be placed on the pump at about $3500, or about $1.00 per foot of hole involved.

War's Influence

[Continued from page 44]

that procure twice the amount of products from a barrel of crude oil.

(2) Curtailment of civilian motor fuel consumption in practically all Europe will go a long way toward meeting military requirements, due to the enormous increase in private demand in the past 25 years.

(3) That insofar as the United States individually is concerned, it can expect to be called upon to furnish a smaller percentage of war-time petroleum needs, due to (a) the growth of production in other countries, (b) discovery of oil in nations not productive in 1915, and (c) the gain in oil holdings controlled by British-French interests during the period.

(4) The chief benefit that the United States will reap will be due to its refining capacity and modernized plants. This will consist of increased demand for aviation gasoline, lubricating oils and certain grades of fuel oils.

(5) All in all, the influence of war on oil during the year 1940 is not expected to be great—regardless of whether the conflicts become widespread, intensive and of long duration, or should the wars be terminated at an early date.

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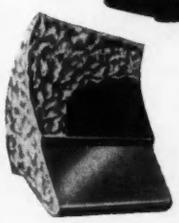

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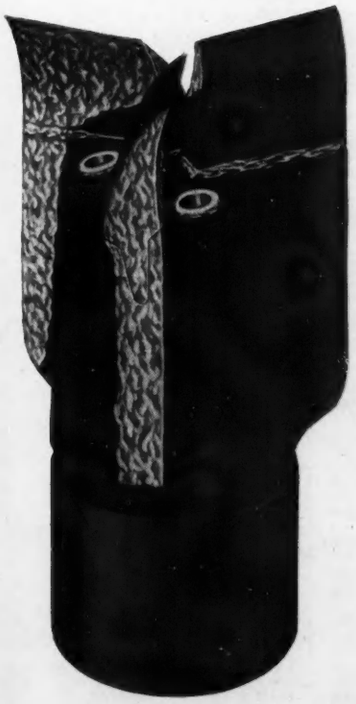

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Drilling Expenditures in 1940 to Be Larger

By BRAD MILLS, Associate Editor

INDICATED expenditures for drilling operations in the United States during 1940 are substantially above those in 1939. A survey by states and companies points to the drilling of more wells and a gain in footage drilled.

Several factors point to these conclusions. The anticipated improved domestic demand for petroleum products during 1940 is expected to be reflected in increased drilling operations in areas yielding the most desirable crudes. Producing territories located near increased industrial activity or adjacent to easy export facilities also will be favorably affected by promise of greater oil consumption. However, some of the intensely drilled regions of 1939 will show smaller expenditures during the year, and slightly decreased expenditures are indicated for one or two states now threatened with more stringent curtailment regulations.

Total drilling expenditures for 1940 are estimated at $608,725,800 in comparison with $561,270,000 estimate made at the first of 1939. This obviously includes all equipment, labor and expense charges. It is calculated that 29,346 wells will be completed during 1940, while actual completions in 1939 totaled 27,550. It is estimated that the average depth of wells during 1940 will be 3047 feet, an increase from the actual 3002 feet registered in 1939. Therefore, on the basis of 29,346 wells 89,414,196 feet of hole will be drilled, which compares with the 82,711,156 feet actually made in 1939.

The average indicated drilling cost per foot is $6.81, but both cable tool and rotary methods are included. The extreme price range per foot runs from around $3.00 in the favorable cable tool districts to $15 per foot in the difficult rotary areas. Drilling costs per foot have declined steadily for several years, improved methods and equipment having more than offset the greater average depth in such districts as the Gulf Coast and California. A cost of $15 is not uncommon in remote wildcats, but in some of the most favorable rotary drilling districts an average cost of $4 per foot is frequently reported. The extreme cost range for rotary drilling in the United States extends from half the average cost per foot to more than twice the average cost. The variation from state to state is sharp.

The drilling estimate for expenditures is based on actual reports

Forecast of Drilling Expenditures for 1940

	Usual Depth, Range	Average Depth, 1940	Well Cost Range	Average Well Cost	Wells in 1940	Estimated Expenditures, 1940
Arkansas	1400– 9000	6042	$8,000– $90,000	$52,000	170	$ 8,535,000
California	1000–13300	5582	10,000– 250,000	60,000	992	61,240,000
Colorado	3000– 7000	3890	20,000– 70,000	35,000	27	945,000
Illinois	900– 3500	2275	5,000– 23,000	11,200	3,050	35,300,000
Indiana	1000– 3000	360	5,000– 20,000	11,500	360	4,152,000
Kansas	1000– 4500	3115	10,000– 35,000	26,000	1,508	39,208,000
Kentucky	300– 3000	1375	3,000– 15,000	5,000	580	2,800,000
Louisiana:						
North	1500– 8800	3432	10,000– 100,000	26,000	406	10,518,300
South	1100–11000	6500	10,000– 115,000	60,000	990	60,480,000
Total Louisiana	.....	....	.....	.....	1,396	70,998,300
Michigan	1100– 3500	1810	6,000– 20,000	10,000	1,200	12,000,000
Mississippi	3000– 6000	4898	20,000– 50,000	35,000	160	5,600,000
Montana	1000– 2800	2083	6,000– 28,000	12,000	170	2,040,000
New Mexico	1000– 4600	3500	10,000– 45,000	35,000	650	22,750,000
New York	800– 2000	1460	3,000– 10,000	5,000	1,230	6,200,000
Ohio	400– 2000	....	4,000– 12,000	6,500	1,050	6,876,000
Oklahoma	500– 9000	2815	4,000– 150,000	28,000	2,185	61,180,000
Pennsylvania	200– 3000	1721	2,000– 20,000	6,000	3,775	22,700,000
Southeastern States	1000– 6000	1550	3,000– 50,000	6,300	77	487,000
Texas:						
East Texas Field	1000– 6100	3640	9,000– 14,000	12,000	270	3,240,000
Rest of East Texas	800– 6100	4135	6,000– 50,000	25,000	298	7,393,500
North	300– 4000	2200	3,000– 16,000	12,000	1,868	22,416,000
South	500– 8000	4150	4,000– 75,000	27,800	3,022	84,137,000
Gulf Coast	1000–10000	6418	7,000– 100,000	45,000	1,226	55,083,000
Panhandle	2000– 3600	3050	12,000– 23,000	16,000	515	8,240,000
West	1500– 6000	3600	10,000– 50,000	27,000	1,975	53,325,000
West Central	800– 3000	1600	5,000– 12,000	8,000	690	5,620,000
Total Texas	.....	....	.....	.....	9,864	239,454,500
Utah	.....	2727	10,000– 40,000	25,000	6	150,000
West Virginia	800– 4000	2400	4,000– 16,000	11,000	590	649,000
Wyoming	1000– 8000	3100	5,000– 60,000	29,000	149	4,321,000
Others	200– 8000	1452	2,000– 100,000	7,200	157	1,140,000
United States Average or Total	200–13300	3047	$2,000–$250,000	$20,743	29,346	$608,725,800

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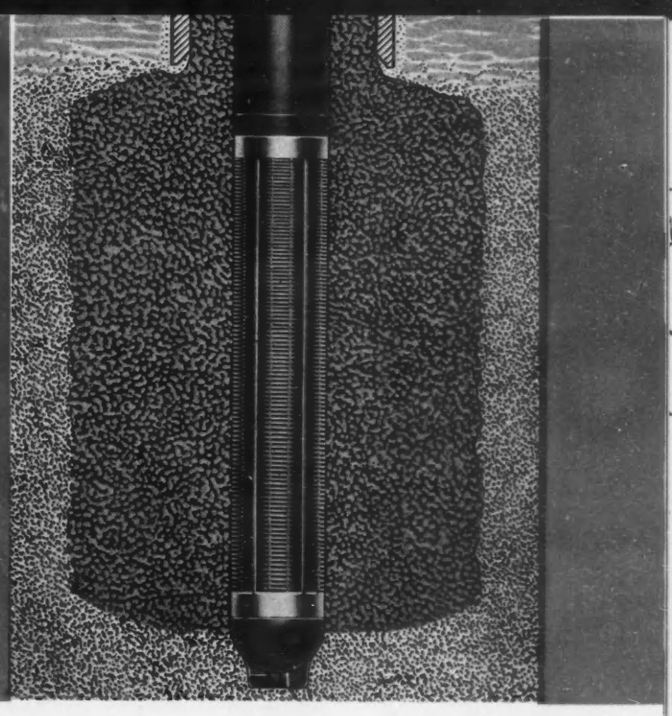

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from representative operating companies in every producing district. Possible fluctuations in crude oil prices, potentials, and the failure of certain states to establish actual proration control were factors considered in the estimate. Several of the largest producing companies have announced definite drilling budgets, and the average of all reports points to an increase for 1940.

Costs Vary

Conditions and the average drilling depths so radically affect drilling costs that the number of wells drilled in a district may become secondary. Arkansas and Montana are each scheduled to drill 170 wells in 1940, but the expenditures and average depths contrast sharply. The indicated average depth in Arkansas is 6042 feet and the average well cost $52,000; while in Montana the indicated average depth for 1940 is 2083 feet and the average well cost only $12,000. Thus the Arkansas expenditure of $8,535,000 is more than four times that indicated for Montana. Montana has mixed cable tool and rotary drilling, but on the whole operations are much less severe than in Arkansas.

Along the Louisiana Gulf Coast drilling is deep and expensive, due to natural obstacles rather than to actual difficulty in making hole. The 990 wells scheduled for this area in 1940 will cost around $60,480,000, or about $60,000 each for an average depth of 6500 feet. Heavy equipment and a generous variety of items necessarily are used in this district. The same number of wells in Ohio or Pennsylvania would cost only a fraction as much.

California drilling is also very expensive, averaging around $60,000 per well for the 5582-foot depth average. The well cost range in this state also varies sharply from around $10,000 to more than $250,000. The total drilling expenditure of $61,240,000 compares favorably with that of 1939. The average drilling cost per foot is highest in this state.

Rocky Mountain drilling costs range from $3 per foot in the most favorable areas to $10 per foot in the deep rotary districts. New Mexico shows an average well cost of $35,000 for a 3500-foot well depth average, hard formations predominating in all of the deeper districts. Wyoming, until recently a strict cable tool state, now has gone heavily toward rotary drilling, and as a result has developed valuable deep production. Some of the deep tests in this state cost more than $60,000, as compared with less than $5000 in the shallowest fields.

Drilling costs in Texas are more varied than in the average state. The cost per foot for rotary tools ranges from $3.50 to $10, but the state average is less than that for the United States as a whole. In the East Texas field, wells are drilled at a total cost of $11,000 to $13,000. This is an average of only $3.30 per foot for rotary drilling. Along the Gulf Coast, the average drilling cost per foot is around $7.00, or $45,000 for a 6418-foot well. In West, East, South, North and the Panhandle of Texas, drilling costs range from $4 to $7.50 per foot. The Texas state average is above $6.50 per foot. The West Texas cost is slightly higher per foot than in the more accessible areas.

Indicated drilling expenditures in Pennsylvania are substantially higher than in 1939, the number of wells to be drilled being at least 40 percent above those drilled in 1939. A much stronger demand for crude oil from this district has been reflected in plans for extensive drilling during the present year. The average well cost is low, however, and the 3775 wells due for completion this year will be drilled at an average cost of $6000.

Illinois drilling expenditures will total more than $35,000,000 for the 3050 wells now indicated for the current year. The average well depth in this state is about 2275 feet and the drilling easy in most districts. Expenditures in 1939 were considerably higher for completing 3800 wells.

Oklahoma drilling expenditures will be up materially in 1940, with 1050 wells indicated at an average cost of $28,000. Well costs range from less than $4000 in the shallow districts to more than $150,000 in some of the wildcat areas, but the average cost per foot is higher than the United States average. The deep Fox production at 8800 feet in this state is very expensive to develop, many of the wells having cost more than $150,000 each.

Kansas drilling expenditures for 1940 will total $39,308,000, if the 1508 wells indicated are completed.

Mississippi has entered the ranks of producing states, and drilling costs in this area are interesting. Cost of the original wells at Tinsley, the discovery field, was around $35,000, but subsequent producers have been completed at much smaller costs. It is believed that at least 160 wells will be completed during 1940, and the average indicated cost is $35,000. At least one new field should be found during the year, and depth of production in the next field will have an important bearing on well costs.

Cost Analysis

THE OIL WEEKLY recently conducted a survey to determine what percentage of the total drilling cost was equipment, labor and expense. An analysis of several replies indicated that about 45 cents of every dollar spent for drilling goes to equipment. Such a percentage includes actual equipment used, and depreciation of equipment used and moved away. The 1940 bill for drilling equipment should be $273,000,000, if application of the 45 percent proportion is correct.

Depreciation in the form of wear-and-tear is much greater than most operators realize. The charge of only the amount of equipment used on and left at a well is incorrect, since depreciation of all equipment should be included. Many small equipment items will not drill more than one well, but others may drill a dozen wells.

The service life of equipment has much to do with well costs. The average useful life of the heavier equipment items is about four years. Theoretically a drilling outfit must be replaced every four years. Such items as a rotary table or draw works may have a definite useful or service life, but such smaller items as rotary chain, drilling lines, bits and lighter specialties have no established service life from the standpoint of time.

Operators did not enter 1940 with a burdensome surplus of drilling equipment. Equipment sales during the first part of 1939 were unusually low, and such heavy equipment items as boilers, derricks and draw works were not purchased in quantity.

Replacement sales indicated for 1940 are at least normal for any representative period of years, and should closely parallel 45 percent of the total expenditures for drilling. Political uncertainty is always present, but prospects for a good year are bright. Equipment costs are rising, but producers will gladly buy what they need if the anticipated demand for petroleum products materializes.

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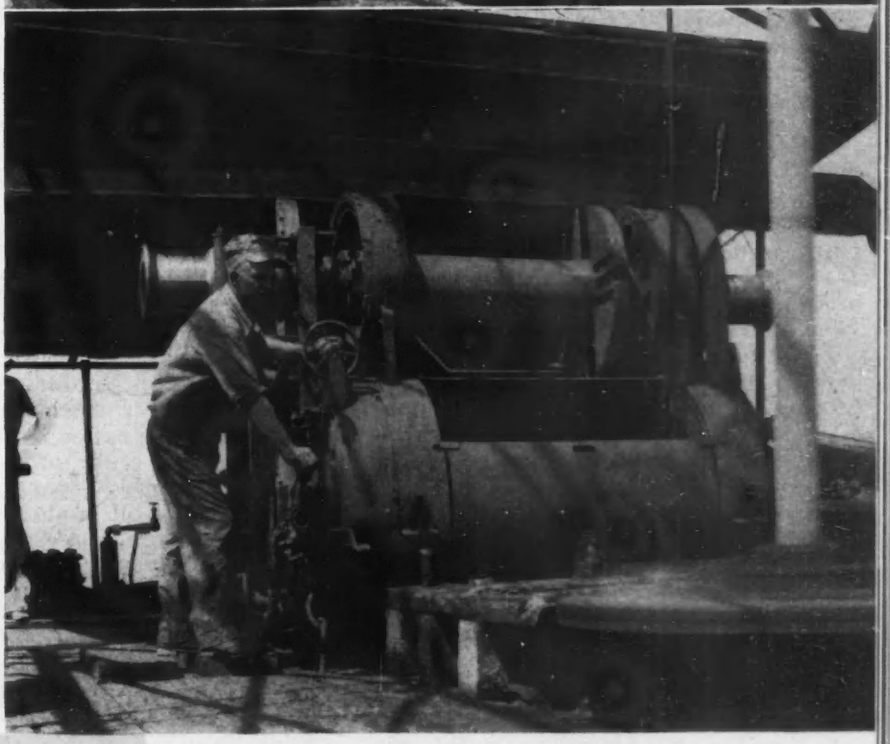

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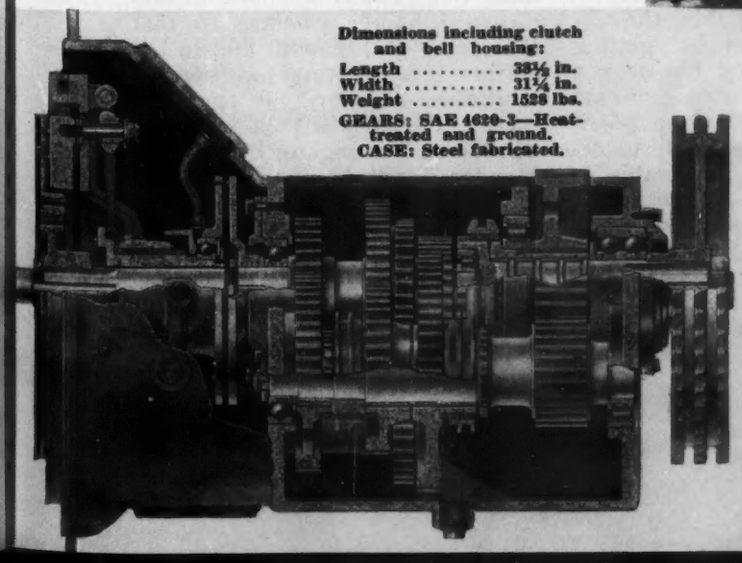

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Oil Search Abroad Will Be More Intensive

By WILLIAM V. GROSS, Foreign Editor

THE search for oil production in other countries besides the United States probably will be conducted with greater intensity during 1940 than heretofore. There are several reasons for this belief. In the first place, the usage of petroleum product is expected to increase, war or no war. It is true that civilian consumption in nations at war has been interrupted, but this will be replaced 100 percent and perhaps more by military demand; and those nations at peace will experience a continuation of the general upward trend in the use of petroleum products. In the second place, regardless of the immediate influence of current European wars on consumption, they have served to cause each nation to realize more fully than ever before the desirability of having domestic supplies of lubricants and fuels for modern mechanized military units. Consequently, each country will encourage oil prospecting.

However, the foregoing does not mean that the actual number of wells drilled in 1940 outside of the United States will be materially greater than in the past year. Wildcat drilling in all likelihood will be larger, but the scarcity of important discoveries in 1939 that might otherwise have resulted in some concentrated development activity will offset, at least in part, the gain in exploratory testing.

There is only one way to get a worldwide picture of what may be expected in the way of drilling in 1940, and that is to go into the matter country by country and look into the prospects of each.

There was a definite pickup in drilling in Venezuela the latter part of 1939. The outlook for Venezuelan drilling in 1940 has been brightened by Mexico's dilemma and by the fact that normal operation of the 16-inch line from Oficina to Guanta will give new areas an outlet for 12 months of the period rather than for slightly less than one month, which was the case in 1939. Those who have recently visited Eastern Venezuela say the wildcatting campaign there is the greatest in the history of the country, a situation in which the law of averages almost assures opening of additional crude oil sources and the resultant exploitation drilling. An all-time peak of about 207,055,000 barrels was recorded by Venezuela during 1939, as compared with 190,231,780 barrels in 1938, and the current monthly trend is upward. As long as a market exists for that 209 plus million barrels the producers will attempt to maintain the current rate of production.

At the beginning of 1940 Colombia ranked appreciably higher as an oil-producing nation due to completion of South American Gulf Oil Company's pipe line from the Barco concession to tidewater at Covenas, a project which automatically assured the nation a substantial increase in crude production. Having been a one-company nation in the matter of oil production for a decade or more, success of Colombian Petroleum Company on the Barco concession during the past 12 months has served as a spur to exploratory efforts of other organizations in that republic, with the result that efforts to find additional reserves may be expected to continue. On top of this, the Colombian government is getting ready to enter the oil business, a situation which will cause private enterprise to do everything possible as promptly as possible to develop new reserves. Colombia is practically certain to show an increase of at least 20 percent in production over the 22 million plus barrels produced in 1939. It does not seem out of line to predict a minimum of 140 completions there in 1940.

When Trinidad passed the 19 million barrel mark in 1939 it established an all-time peak in production of crude. The previous peak was in 1938, when recovery totaled 17,737,061 barrels. Since 1939 afforded considerable expansion to proven areas on the island, exploitation drilling in 1940 should result in completion of at least 250 wells, which was the estimated number of completions in 1939. Due to dominance of British influence in Trinidad information on 1939 operations has not been easy to obtain, but the score of rigs busy on shallow objectives as the year closed indicate an active drilling year. Practically all Trinidad production comes from considerably less than 5400 feet, which means that time consumed in finishing wells is less than two weeks on the average.

Argentina has been rocking along for several years without much prominence in trade publications, but the fact stands that Argentina has increased production and has called for bids from American drilling contractors that indicate at least 75 of 1940 completions will be effected by foreign operators, not oil companies, but drilling contractors. This does not mean drilling equipment of Yacimientos Petroliferos Fiscales is worn out; it merely means that the production quota set for 1940 is more than locally available equipment can handle. Chances are that the spring of 1940 will find in operation in Argentina considerably more than the 60 rigs in operation there at the close of 1939. New production at Tupungato, Province of Mendoza, will have to be developed, and the government's plan for exploitation of the old Comodoro Rivadavia field is said to be far behind schedule, both of which would seem to portend an acceleration in drilling.

Brazil, largest nation in the

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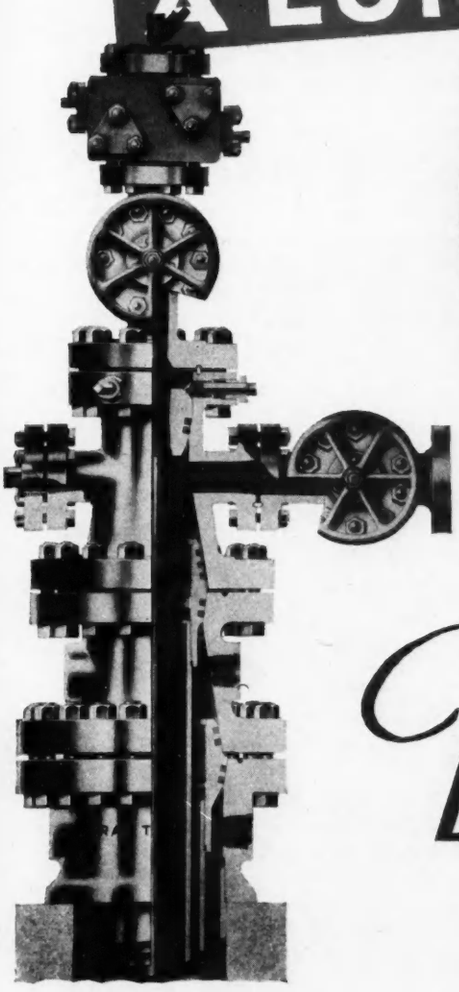

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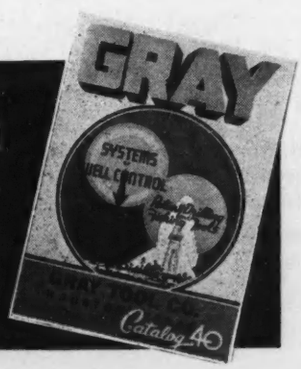

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Americas, continues a baby in oil producing circles but is definitely on the debutante waiting list of tomorrow. Just when she will "come out" is problematical, but sufficiently encouraging developments in wildcatting have occurred to justify purchase of three new rotaries for further exploratory work. Lobato, eastern Brazil, promises to become a commercial field, and preliminary investigations in the western part of the country, near the Peruvian border, are said to be far from discouraging.

Peru has rocked along for several years with routine development of the older fields. But 1939 saw verification of the fact that Blue Goose Oil Company had a real field on the Pachitea concession near the confluence of the river of that name with the Ucayali river. Plans have been made for construction of a small refinery to handle local demand and for the drilling of at least three delineating tests.

While the output of Turner Valley, Canada's leading field, has been rather steeply cut due to the crippling effect of weather on demand, prospects are bright for late spring and coming summer months so far as drilling is concerned. Those months are expected to be attended by restoration of a production allowable figure approaching the old October figure of 26,000 barrels daily. The current allowable is only 12,000 barrels daily, which comes from 91 producers. Wildcatting is active on four structures in southern Alberta just north of the Cut Bank, Montana, field. All four have been detailed by reflection seismograph; two of them have already given evidence of commercial production. Spring thaws will see more active drilling on these and other prospects in Canada.

Mexico continues as unpredictable for 1940 as it was for 1939. Work turned out by the 12 rigs active there during 1939 was not sufficient to keep production at pre-expropriation levels, though failure of the sales department of Petroleos Mexicanos to market oil already available for export doubtlessly had a curtailing effect on drilling. Statistically, Mexico's condition is not such as to encourage drilling; stocks are at a peak and practically all available storage is full. An estimate of 35 completions for Mexico for 1940 would seem a bit on the generous side.

Cuba and the Dominican republic may be expected to continue modest drilling campaigns during 1940, with combined completions of the two probably not exceeding 30 shallow wells. The Dominican republic, incidentally, was a newcomer among producing nations during 1939.

Russia opened several new areas to production during 1939 and possibly came closer to realizing her planned program in expansion of production and drilling than she has heretofore. Reliable statistics on Soviet field operations simply are not available. Baku area was supposed to have completed about 1700 wells in 1939. Grozni area got a new field at Malgobek which was said to have an area sufficient for 300 locations; other new spots in the same area are refraining from normal development drilling due to lack of market outlets.

Rumania is another country that is found to be unpredictable for 1940 insofar as drilling is concerned. If one could be guided by anticipated demand, it might be safe to predict an intensity of activity that would surpass that of 1938 and 1939 by safe margins. On the other hand, it begins to look as though it will be most difficult for Rumania to stay out of the war. If she is invaded, wells and equipment might be destroyed to keep them from falling into the hands of the invaders. This has been done before. On top of this, companies operating in Rumania probably will just rock along with a minimum of drilling until the political situation clarifies to an extent that will allow those companies to be reasonably certain they are not developing new reserves for someone else to take over.

Germany probably plans to do more drilling in 1940 than she ever has because of the war and her well known deficiency in petroleum products. While statistics on field and wildcat developments from Germany, Austria, and that part of Poland which went to Germany after conquest of the former have been regarded military statistics since beginning of hostilities, it is generally thought that 1939 represented a peak in drilling and production for the Greater Reich. One does not know what the drilling program for Germany is for 1940, but it is known that European manufacturers of drilling rigs are far behind on filling orders for equipment. American equipment is difficult to obtain due to conditions of war and exchange. Function of the law of averages suggests probability that the Nazi subsidized exploratory campaign has uncovered new fields and sands as does a record bespeaking a steadily rising production curve. It is not considered to be rising rapidly enough, however, to take care of the increased domestic demand.

Flush production at Ras Gharib, better than trippling Egypt's output, has served as an incentive to continued wildcatting, with the result that lease holdings have been increased by millions of acres. Exploitation drilling will continue in the relatively shallow Ras Gharib field and there is no reason to forecast any serious curtailment in exploration on the part of some of the world's largest oil companies.

Damman dome, located on the Arabian mainland across from Bahrein Island, probably will be the busiest spot in Arabia during 1940. Five rigs are busy developing the 4700-foot pay at this California-Arabian Standard Oil Company project. Eleven wells were on production in the new field at last reports with considerably more to be drilled to utilize full capacity of the 10-inch line from it to Ras Tanura, 50 miles away.

Kuwait, a small principality between Arabia and Iraq, entered the ranks of commercial producers. Kuwait Oil Company, holder of the productive concession, is jointly owned by Anglo-Iranian Oil Company and Gulf Oil Corporation.

Data concerning operations in Iraq and Iran during the latter part of 1939 have been difficult to obtain due to the fact that British influence predominates and all information regarding oil field and wildcat developments necessarily are regarded as military information. However, as the area represented by these two countries constitutes one of the prime sources of supply for the Allied partisans in the current European war, it is reasonable to assume that nothing will be done to retard maintenance of production at a rate which would take care of war-time demands. It is general knowledge that pipe line programs are going forward, a thing that would lead to the belief that production from these two countries will be increased during 1940, if not prohibited by war.

Outside of the foregoing countries, there is no apparent reason why drilling activity in 1940 should greatly exceed that of 1939, unless some important discoveries are made.

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Average Well Depth Decreases in 1939

By WM. H. STRANG, Staff Writer

A SLIGHT decrease in the average drilling depth in the United States was a significant feature of 1939 operations. The decrease, from 3109 feet in 1938 to 3002 feet in 1939, is traceable directly to the unusual volume of drilling in the shallow Michigan and Central States areas, and is no indication, in itself, that a trend toward greater completion depths established in the preceding five years, has been reversed.

Total footage drilled during 1939 was 82,711,156 feet, compared with 87,497,152 feet in 1938 and 99,922,908 feet in 1937. Completions in the aforementioned districts are expected to wane in 1940, but the effect of this on the average depth will be offset by a large expected increase in New York and Pennsylvania that will make any increase in average depth most unlikely.

It should not be concluded, however, that deeper horizons are being neglected. But for the phenomenal increase in Illinois drilling during 1939, the average depth for the United States would have been 3170 feet, an increase of 61 feet over 1938 and comparable to the increments of 32, 113, and 135 feet added since 1935.

Examination of the accompanying table shows that among the primary deep drilling districts—Arkansas, California, South Louisiana, Corpus Christi Area of South Texas, the Texas Gulf Coast, and West Texas—only Arkansas failed to show an increase in average depth in 1939.

Further analysis reveals that the aggregate decline in wells drilled for this group from 1938 to 1939 was 283, while in the primary shallow areas—Illinois, Michigan, New York, Pennsylvania, Ohio, Kentucky, San Antonio Area of South Texas, and West Central Texas—there was an aggregate increase of 2164 wells. The total of 17,137 wells drilled in the two groups combined left 10,413 wells to be drilled in 1939 in the areas of intermediate, or 2000- to 4000-foot drilling.

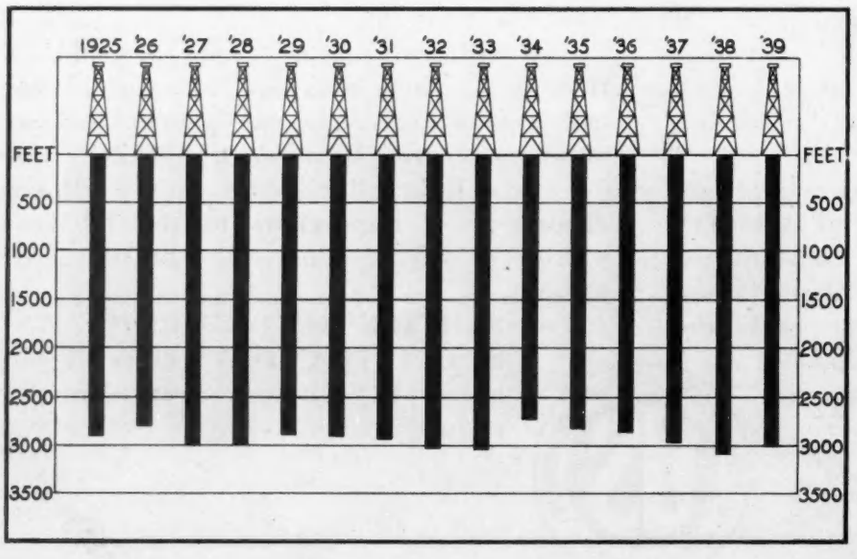
Further indication that a decline in the average depth does not mean a regression in the tendency toward deeper wells is given in the accompanying graph which demonstrates the cyclic nature of depth averages. Since 1925 seven different trends have been established; three times the results of two or more years indicated that the average depth would continue to increase, while four times alternate diminishing trends were established. The reversal in 1939, however, breaks the most consistent tendency toward increased depth on record.

South Louisiana, with an average depth of 6395 feet, was for the fifth successive year the sector of deepest general drilling. The increase of 165 feet there, however, was exceeded by an increase of 187 feet which brought the Texas Gulf Coast average to 6335 feet. Arkansas, a minor factor in bolstering the averages with only 229 completions, showed a decrease from 6230 to 6042 feet in average depth.

Among the districts with average depths less than 6000 feet, California led with 5592 feet. An increase of 742 feet was due to development of 10,000-foot fields in Kern County and the Los Angeles basin. The Corpus Christi area of South Texas was the only other sector with an average over 5000 feet, increasing 62 feet to 5553 feet.

A glance at the mean depths of new fields found in 1939, discussed in an article on page 100 of this issue, shows that the average depth

Comparative Average Drilling Depths by Years



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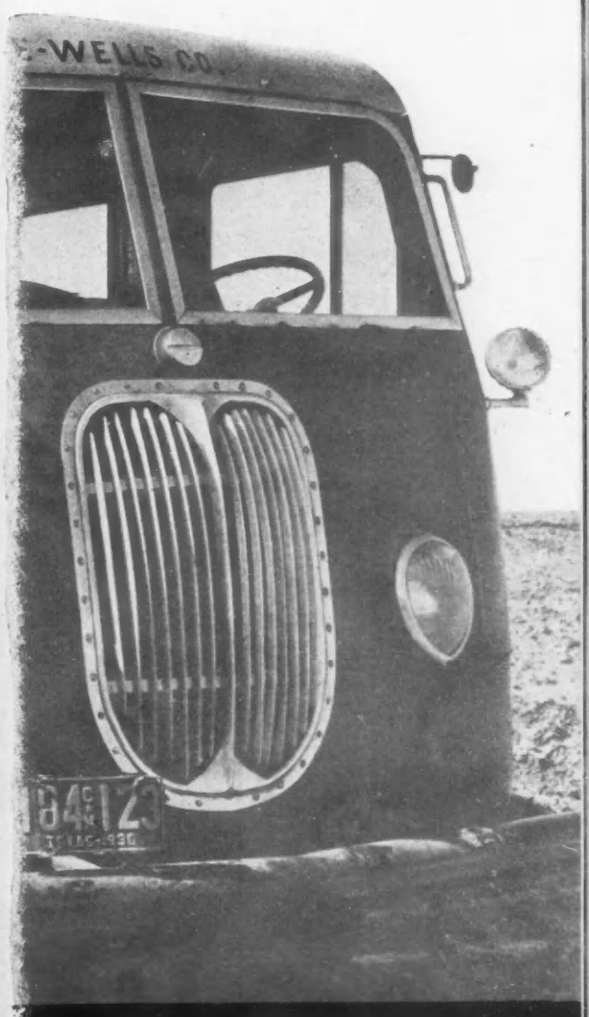

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of the 259 new fields was 4253 feet, considerably greater than the national average for all wells, and 214 feet more than the average of fields found in 1938. Development of these fields in 1940 will have a marked effect upon average depths for this year, especially in California where 3 of 4 fields found in 1939 were below 8000 feet.

Any heavy drilling to Mississippi's 4800-foot Eutaw sand would weigh in the 1940 average, while, conversely, heavy drilling to the 2300-foot Hunton lime in Nebraska would offset it.

Development of the 8 new pay horizons found in Illinois would partially offset that state's depressing effect upon the United States average.

New producing formations found in Indiana, Michigan, New Mexico, and West Texas are at levels deeper than the averages for the respective districts. The Texas Gulf Coast has contributed 6 new sands in old fields deeper than 7000 feet, and 7 new fields deeper than 7000 feet. The effect of these deep discoveries will be again masked by the heavy drilling in the shallow Pennsylvania Grade regions in 1940, but will be no less a part of the trend toward deeper drilling that has been even more noticeable in 1939 than in 1938.

Trends within districts were largely a continuation of those established in previous years. Among districts that tended toward shallower drilling in the past four years, the trend was extended in Michigan, Oklahoma, East Central Texas, the San Antonio Area of South Texas, and the Texas Panhandle.

In areas in which drilling has been progressively deeper of late years—Arkansas, California, Indiana, Kansas, Louisiana Gulf Coast, Mississippi, Montana, Pennsylvania, North Texas, Laredo Area, Texas Gulf Coast, West and West Central Texas, and West Virginia—only Arkansas, Kansas, Montana, and North Texas registered a sharp reversal, while West Central Texas, Laredo Area, and West Virginia declined in lesser amount.

Supporting the theory that the heavy drilling anticipated in the Pennsylvania Grade states during 1940 will prevent an increase in average depth is the forecast of wells to be drilled in the deeper districts. In these areas—Arkansas, California, South Louisiana, the Corpus Christi Area, Texas Gulf Coast, and West Texas—THE OIL WEEKLY predicts an aggregate increase of 195 wells in 1940. In Pennsylvania and New York an increase of 1786 wells is expected. Their average depth of about 1600 feet would compensate for the drilling of 388 wells of 6500-foot average depth.

Decreases in Completions and Average Depths Cause Decline of Footage Drilled

YEAR	Wells Completed	Footage Drilled	Average Depth per Well
1925	25,406	73,677,400	2900
1926	28,995	81,186,000	2800
1927	22,301	66,903,000	3000
1928	19,964	59,892,000	3000
1929	23,463	67,925,285	2895
1930	19,848	57,557,200	2900
1931	11,716	34,259,110	2924
1932	14,290	43,033,422	3011
1933	12,170	36,904,500	3032
1934	18,949	51,748,906	2731
1935	22,669	64,112,400	2829
1936	26,935	77,071,920	2861
1937	33,112	99,922,908	2974
1938	28,272	87,497,952	3095
1939	27,550	82,711,156	3002

Wells, Footage, and Depths Drilled in the United States in the Past Four Years

(Determined from The OIL WEEKLY'S records on depths of completed wells)

	WELLS COMPLETED				FOOTAGE DRILLED				AVERAGE DEPTH PER WELL			
	1936	1937	1938	1939	1936	1937	1938	1939	1936	1937	1938	1939
Alabama	2	2	1	1	7,470	13,632	5,214	6,266	3735	6816	5214	6266
Arizona	.....	.....	.....	3	.....	.....	.....	3,876	....	....	....	1292
Arkansas	90	140	224	229	287,119	636,775	1,395,584	1,383,599	3190	4548	6230	6042
California	1,123	1,470	1,270	1,037	4,634,528	5,970,047	6,110,796	5,798,904	4127	4061	4850	5592
Colorado	19	19	11	19	67,580	70,325	34,902	73,919	3557	3701	3173	3890
Florida	2	1	.....	.....	3,590	510	.....	.....	1795	510	....	....
Georgia	.....	.....	.....	1	.....	.....	.....	3,570	....	....	....	3570
Illinois	4	408	2,032	3,806	7,348	822,463	3,806,260	7,470,047	1837	2016	1873	1964
Indiana	165	146	163	294	143,525	141,496	186,168	499,891	870	969	1142	1700
Kansas	1,722	2,657	1,642	1,450	5,442,549	8,327,976	5,299,000	4,440,499	3161	3175	3227	3062
Kentucky	273	575	796	657	197,950	577,518	985,330	901,940	729	1004	1230	1373
Louisiana	994	987	1,072	1,176	4,844,021	4,957,590	5,679,637	6,623,509	4873	5022	5298	5632
North Louisiana	556	510	508	351	2,315,062	2,096,802	2,160,340	1,347,914	4164	4111	4252	3840
South Louisiana	438	477	564	825	2,528,959	2,860,788	3,519,297	5,275,595	5774	5997	6240	6395
Michigan	756	925	999	1,455	1,933,671	2,774,394	2,456,828	2,634,054	2558	2999	2459	1810
Mississippi	8	14	21	20	23,982	50,952	82,305	97,959	2998	3639	3919	4898
Missouri	.....	.....	[1]164	82	.....	.....	[1]84,112	42,056	....	....	[1]1200	1201
Montana	193	200	79	152	466,280	419,032	174,165	316,663	2416	2095	2204	2083
Nebraska	1	.....	1	2	4,040	.....	3,829	6,752	4040	....	3829	3376
New Mexico	564	674	534	654	2,130,078	2,540,040	2,023,202	2,293,976	3777	3750	3770	3508
New York	760	1,253	692	672	1,112,000	1,882,091	943,134	980,926	1599	1502	1363	1460
North Dakota	.....	.....	1	.....	.....	.....	10,281	.....	....	....	10281	....
Ohio	1,918	1,487	923	991	3,715,980	2,778,422	1,648,632	1,909,512	1937	1868	1786	1927
Oklahoma	2,857	2,926	2,087	2,081	8,968,906	8,731,295	6,179,799	5,941,483	3139	2980	2961	2855
Pennsylvania	2,256	3,154	[2]2,583	2,547	2,959,600	5,234,300	[2]3,906,101	4,336,945	1312	1342	[2]1512	1703
Tennessee	.....	.....	2	33	.....	.....	3,990	34,146	....	....	1950	1035
Texas	12,527	14,997	12,184	9,436	38,505,628	51,106,381	44,311,800	34,896,899	3074	3408	3637	3698
East Texas Field	[3]3,193	2,466	1,806	425	[3]11,993,420	8,937,480	6,584,376	1,546,224	[3]3756	3624	3645	3629
Rest of East Texas	.....	1,007	487	303	.....	4,726,167	2,180,719	1,253,843	....	4693	4478	4138
North Texas	2,179	2,254	2,398	1,714	2,999,559	3,866,156	5,777,858	3,949,956	1377	1756	2409	2304
South Texas	3,321	3,594	2,744	2,710	10,639,909	12,857,959	10,218,307	10,544,059	....	3577	3723	3891
Corpus Christi Area	.....	1,456	1,216	1,326	.....	7,597,442	6,410,099	7,336,639	....	5218	5271	5533
Laredo Area	.....	1,522	1,057	1,001	.....	3,727,888	2,870,312	2,537,279	....	2462	2715	2535
San Antonio Area	.....	616	471	383	.....	1,532,629	937,896	670,141	....	2488	1991	1750
Texas Gulf Coast	1,127	1,537	1,522	1,291	5,906,387	8,825,709	9,358,298	8,178,082	5241	5742	6148	6335
Texas Panhandle	665	838	571	453	1,986,952	2,574,211	1,742,625	1,382,037	2988	3072	3052	3051
West Texas	1,579	2,898	2,290	2,045	4,251,034	8,645,507	7,765,953	7,256,763	2692	2983	3391	3549
West Central Texas	463	403	366	495	728,367	673,192	683,664	785,935	1573	1670	1869	1588
Utah	.....	1	4	2	.....	5,674	19,836	1,714	....	5674	4959	857
West Virginia	599	971	679	621	1,346,350	2,537,840	1,847,480	1,585,854	2248	2614	2721	2554
Wyoming	102	105	108	129	269,725	344,155	298,767	426,197	2644	3277	2761	3304
United States	26,935	33,112	[3]28,272	27,550	77,071,920	99,922,908	[4]87,497,152	82,711,156	2861	2974	[4]3095	3002

[1] Missouri data for 1938 herewith added to The Oil Weekly's records.
[2] Pennsylvania data for 1938 revised to include additional completions at Bradford.
[3] Also includes rest of East Texas.
[4] Data for 1938 revised to include Missouri and to show additional completions at Bradford, Pennsylvania.

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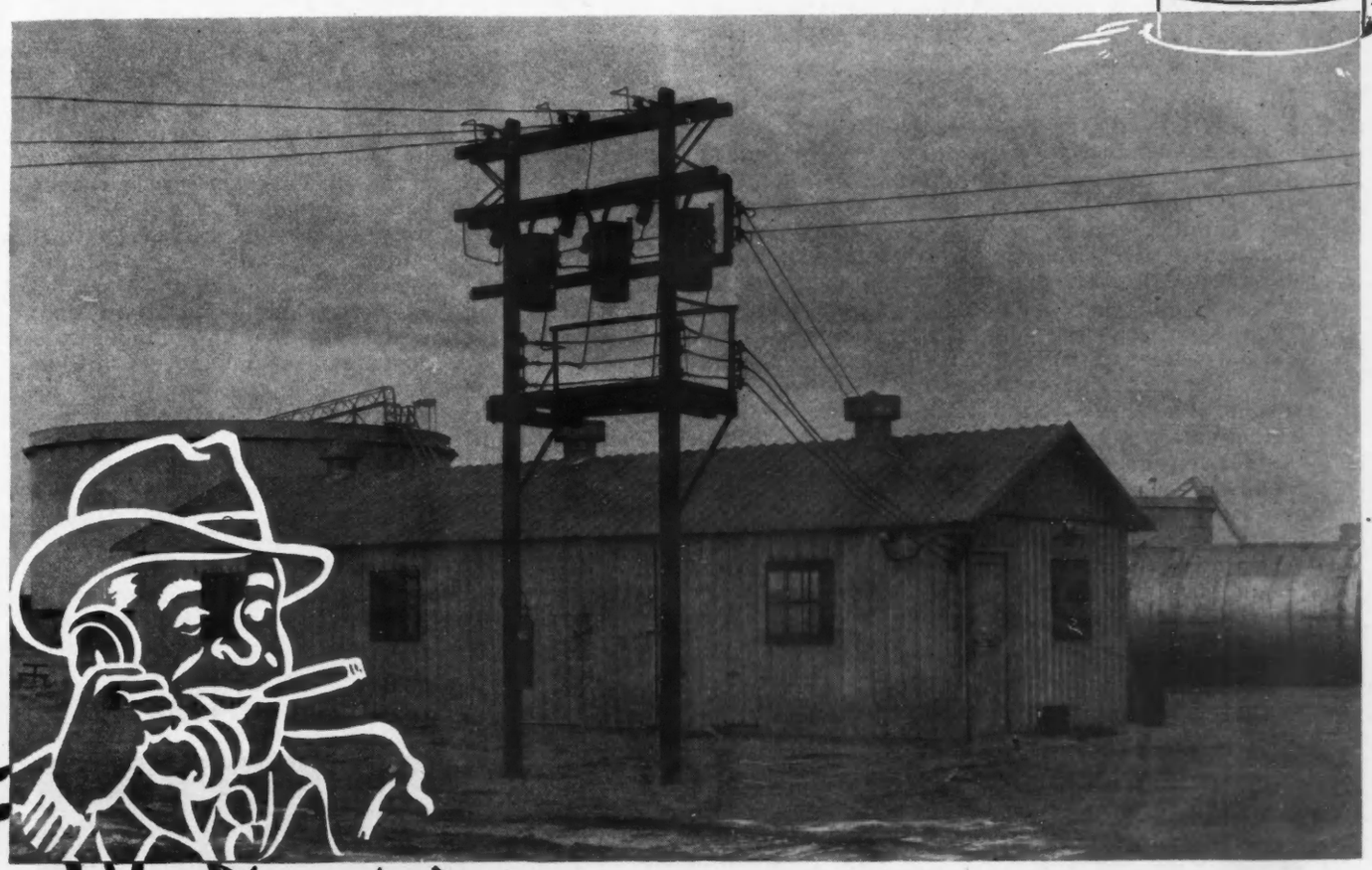

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U. S. Has Record Number of Producing Wells

IN LINE with the consistently increasing demand for petroleum products, the number of producing oil wells in the United States has been gaining steadily, and a continuation of the rising trend may be expected in 1940.

A new high was reached in 1939, when the wells on production reached a total of 380,893, according to preliminary information supplied to THE OIL WEEKLY. But a further gain is in prospect for 1940, as relatively good crude prices are promised, while completions of new wells are expected to be somewhat greater than in 1939.

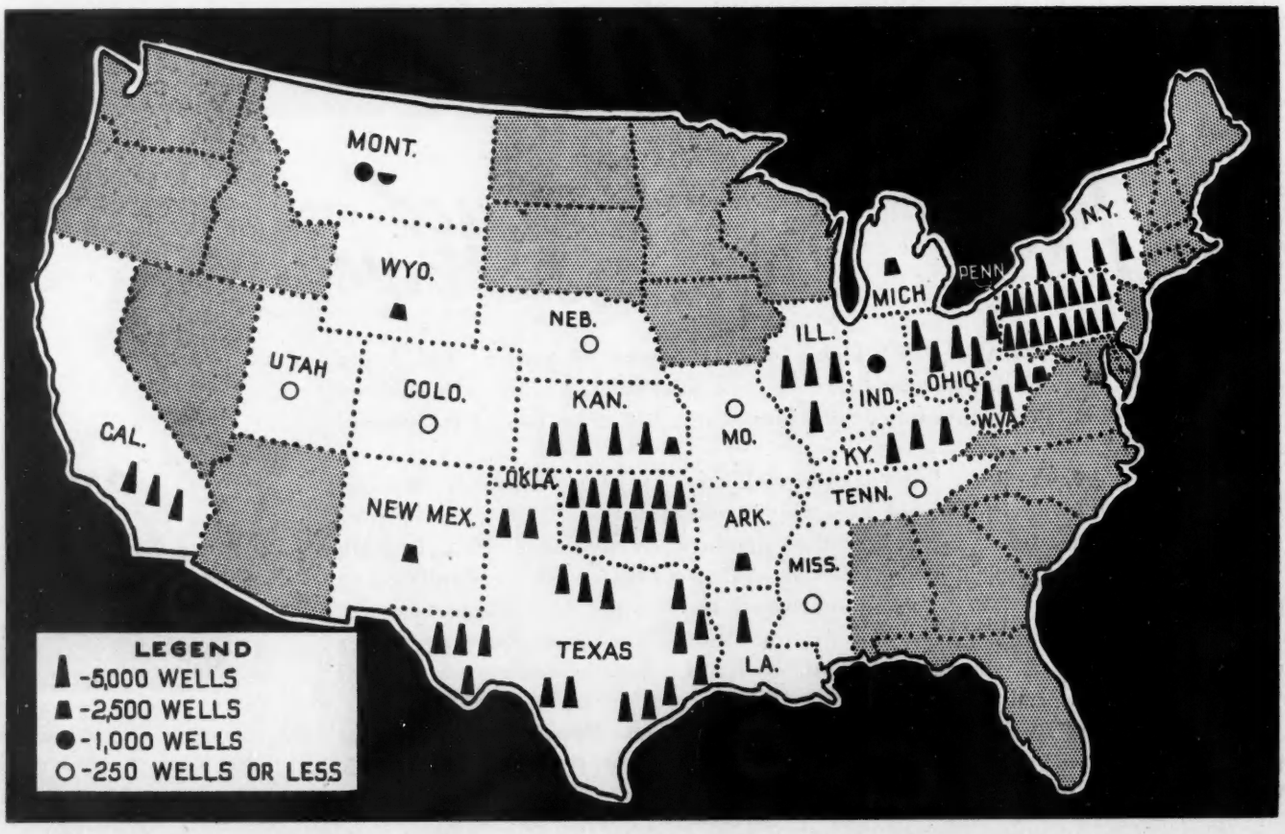
Producing wells in the United States have increased in number from year to year throughout the past two decades, except in periods of particularly adverse economic conditions. They have never failed to show gains since 1931, in which year a set-back occurred, when a combination of adverse conditions forced the abandonment or temporary shutting in of a large number of oil wells. At that time, the market for crude oil was seriously depressed by disorderly production in the East Texas field and by the greatly disturbed general economic situation.

Prices Important Factor

Although the number of producing wells necessarily is determined essentially by completions of new wells, it also is affected materially by fluctuations in the prices of crude oil. Favorable prices encourage the retention of wells on production, even in the face of small output, and a relatively large number of producing wells is promoted. Conversely, low prices throw many wells into the unprofitable category, and abandonments are induced, with the result that the number of wells on production is held down.

The industry's experience in 1931 well illustrates the material influence that the price of crude has on the number of wells kept and placed on production. In that year the price of crude dropped to an average of 65 cents a barrel.

United States Had 380,893 Producing Oil Wells at Close of 1939



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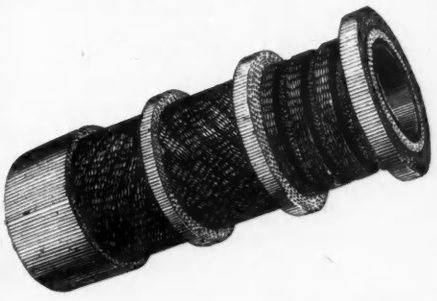

BARNEY COUPLINGS:

Since the beginning of the rotary system of drilling, the industry has felt the need of a method of coupling rotary hose which would eliminate the old clamp and stem type of fittings with their exposed bolts, flanges, etc., as well as the inserted stems which, subjected to the turbulent action of sand and slush, soon wore thin enough to form a knife edge to rupture the tube and ruin an otherwise good hose. Again GOODALL took the lead by producing the Barney Stemless, Clampless and Boltless Coupling. A streamlined Coupling which offers ease of handling, strength of construction, simplicity, and a full size opening from one end of the hose to the other—with no exposed metal stem in the hose.

The salvage value of Barney Couplings is not to be overlooked. When your LONGLIFE Rotary Hose eventually wears out a credit is allowed for the old Barney Couplings on the purchase of your new LONGLIFE hose, when the couplings are returned in good condition.

ROTARY HOSE SKID:

Still retaining our lead we studied the methods of handling Rotary Hose in the field and found that in transporting the hose between locations that it was often subjected to treatment for which it was not built. Rough handling with winch or cat lines, or coiling in too tight an arc for moving had a tendency to kink the hose and rupture the wire re-inforcing, resulting in a broken hose. The development of the GOODALL Rotary Hose Skid met this condition. A roller bearing horizontal hose reel mounted on skids was developed for the easiest and most practical method of transporting Rotary Hose. This Skid is so constructed that two men can reel or unreel a hose with little effort.

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Constant study and observation showed us that there was a great hazard to the life of Rotary Hose in the angle at which the hose hangs from the swivel. Many swivels have goosenecks at an angle of about 45 degrees. Such an angle causes your heavy Rotary Hose to make its own gooseneck, thereby putting a terrific strain on the hose at the swivel end. This strain, with the constant flexing natural to the hose, causes the wire re-inforcing to crystallize and break. To remedy this condition GOODALL developed a Gooseneck to compensate for the acute angle of the swivel gooseneck and permit the hose to hang normally at an angle of 180 degrees, or vertical to the derrick floor.

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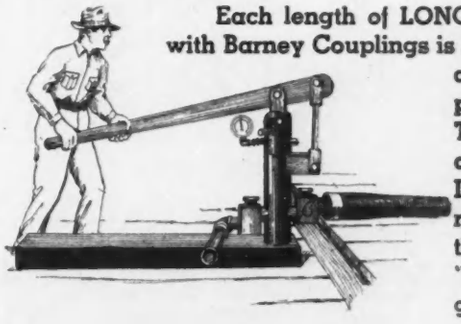
Each length of LONGLIFE Rotary Hose with Barney Couplings is carefully inspected and is individually pressure tested. This is your assurance that LONGLIFE Hose is made right and leaves the factory with "what it takes to get the job done."



We are proud of our progress, proud of our leadership testified to by the large number of LONGLIFE Rotary Hose with Barney Couplings which are giving greater service than was dreamed of three years ago, and which have set a new, higher rotary hose standard. We pledge to the industry our untiring efforts to meet new conditions and new needs as they arise.

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from $1.19 or nearly twice that amount in 1930. From the total of 331,070 at the end of 1930, the number sank to 315,850 at the end of 1931, a decrease of 15,220 wells, despite the completion of 6618 oil wells within the year. Under normal market conditions, there would have been an increase of several thousands of producing wells along with that number of completions.

Gains in Recent Years

Since the troubled times of 1931, when most oil producers operated at a loss, conditions have been more favorable, crude prices have been generally around or above $1 a barrel, and every year has brought an addition to the number of oil wells on production.

The increases since 1931 have been consistently above 5000 wells a year, and next to that in 1937, the gain for 1939 was the greatest for the post-depression period. Stimulated by an average crude price of $1.18 a barrel, the number of producing oil wells increased 13,580 in 1937, to a total of 363,030. The recession of the price to $1.13 a barrel in 1938 resulted in a smaller addition of 8845 wells to the number on production.

In 1939 crude prices further weakened and averaged 98 cents a barrel, with the result that drilling was retarded during a part of the year. However, the outbreak of war in Europe and the sharp pick-up in business in the United States had a definitely stimulating effect on the oil industry's markets in the latter portion of 1939, and incentive was provided for keeping as many oil wells on production as possible, in addition to drilling new wells aggressively.

While the number of producing oil wells increased in 1939, crude oil production showed a relatively larger gain, and the average output per well almost duplicated the record of 1937. The wells of the nation averaged 9.7 barrels daily at the end of 1939, as compared with output of 9.1 barrels daily per well at the close of 1938 and 9.8 barrels a day at the end of 1937.

Texas Gain Largest

Of the increase of 11,253 in the number of producing oil wells in the United States in 1939, Texas accounted for 5140, as the total for the state rose from 85,600 to 90,740 wells. The second largest increase was that of 2482 in Illinois, while Kansas followed with a gain of 1987 wells. California added 881, Michigan 630, and New Mexico 500.

Producing Oil Wells at End of 1939 Most on Record

Table shows approximate number of producing oil wells at end of year, by states, and average daily production per well, in barrels. Source: Bureau of Mines.

	ARKANSAS		CALIFORNIA		COLORADO		ILLINOIS		INDIANA		KANSAS		KENTUCKY		LOUISIANA		MICHIGAN		MONTANA	
END OF YEAR	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well
1921	550	72.0	9,980	32.0	80	3.2	16,650	1.5	2,600	1.1	17,200	5.1	9,200	2.7	3,000	26.7	.....	....	90	56.6
1922	964	54.6	8,916	55.3	75	3.2	16,725	1.4	2,550	1.1	17,900	4.4	10,600	2.1	3,500	23.6	.....	....	150	52.0
1923	1,970	46.0	9,395	74.9	60	3.8	16,674	1.3	2,300	1.1	17,750	4.2	11,700	1.7	3,630	15.8	.....	....	280	20.5
1924	3,050	33.5	11,320	53.6	70	25.8	16,400	1.2	2,140	1.0	12,450	4.0	12,450	1.5	3,550	15.0	.....	....	380	18.9
1925	4,100	49.5	11,070	56.6	80	64.1	16,280	1.3	2,000	1.0	18,600	5.6	13,100	1.3	3,750	14.4	[A]	[A]	590	21.1
1926	4,500	29.6	11,330	58.1	130	60.3	16,270	1.3	2,050	1.1	19,230	6.0	13,300	1.3	4,190	14.9	90	9.3	830	14.3
1927	4,550	24.2	11,280	55.9	170	51.7	16,240	1.2	2,060	1.1	19,600	5.8	13,500	1.4	4,250	14.8	300	6.2	980	15.3
1928	4,520	19.3	10,710	57.6	210	39.9	16,340	1.1	2,040	1.4	19,800	5.4	13,740	1.5	3,820	14.8	400	4.6	1,100	10.5
1929	3,900	16.2	10,520	75.5	220	30.0	16,000	1.1	1,950	1.3	20,080	5.9	14,650	1.5	3,780	14.8	500	27.6	1,290	9.1
1930	3,850	13.9	9,450	62.4	240	19.7	15,800	1.0	1,740	1.5	20,120	5.7	14,400	1.4	3,930	16.5	640	18.8	1,410	6.8
1931	3,280	11.4	8,910	56.4	200	19.2	15,540	.9	1,650	1.4	19,120	5.2	12,420	1.3	3,190	16.8	630	16.3	1,420	5.5
1932	2,880	10.7	8,900	54.7	190	15.9	15,170	.8	1,505	1.4	18,300	5.1	13,510	1.3	3,050	19.1	645	29.6	1,420	4.7
1933	2,890	11.1	10,990	47.4	190	13.3	14,930	.8	1,220	1.5	18,500	6.3	14,100	.9	3,200	22.1	830	29.5	1,440	4.4
1934	2,800	10.8	11,750	42.0	190	16.4	14,630	.8	1,230	1.9	18,550	6.9	13,900	1.0	3,140	28.4	980	32.1	1,400	7.0
1935	2,680	11.1	12,780	46.4	200	21.9	14,330	.8	1,220	1.7	19,250	7.9	13,800	1.0	3,400	42.2	1,160	40.4	1,650	8.3
1936	2,670	10.7	12,230	46.9	210	22.0	14,100	.9	1,230	1.8	19,800	8.2	13,600	1.1	3,800	61.1	1,360	25.9	1,470	10.3
1937	2,670	12.1	13,460	50.9	200	21.4	14,110	1.5	1,240	1.9	21,850	9.3	13,700	1.1	4,160	62.6	1,780	29.0	1,600	10.4
1938	2,800	18.2	13,930	50.0	200	19.3	15,800	4.4	1,260	2.2	20,900	7.7	13,900	1.2	4,900	57.6	2,140	26.2	1,620	8.4
1939[F]	2,900	24.1	14,811	41.3	204	19.4	18,282	18.5	1,480	5.0	22,887	7.7	14,000	1.1	5,324	51.1	2,770	23.9	1,720	10.1

	NEW MEXICO		NEW YORK		OHIO		OKLAHOMA		PENNSYLVANIA		TEXAS		WEST VIRGINIA		WYOMING		OTHERS		UNITED STATES	
END OF YEAR	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well
1921	.....	....	13,500	.2	37,000	.5	56,200	5.5	73,700	.3	13,300	23.2	20,000	1.1	1,450	443.3	.....	....	274,500	4.9
1922	.....	....	14,300	.2	39,300	.5	57,500	7.5	75,000	.3	14,450	18.0	20,200	.9	1,750	53.6	.....	....	284,880	5.7
1923	.....	....	14,640	.3	39,550	.5	57,500	6.9	74,000	.3	18,250	19.3	20,100	.8	2,300	59.7	[B]	[B]	290,100	6.6
1924	[A]	....	15,000	.3	38,900	.5	60,500	8.1	74,350	.3	20,350	17.2	20,000	.8	2,570	26.9	[C] 70	....	299,100	6.2
1925	140	32.3	15,580	.3	39,060	.5	59,400	7.7	75,900	.3	23,400	14.7	19,940	.8	3,080	24.8	[D] 30	....	306,100	6.5
1926	230	24.7	16,150	.4	39,250	.5	61,600	9.3	76,800	.3	29,030	20.0	20,150	.8	3,400	17.3	[E] 70	....	318,600	6.8
1927	250	14.0	16,740	.4	37,600	.5	61,750	10.3	78,480	.3	32,000	19.5	19,900	.8	3,560	16.8	90	....	323,300	7.7
1928	260	10.1	16,500	.4	37,900	.5	62,900	11.0	78,600	.3	35,750	20.8	19,600	.8	3,520	16.6	90	....	327,800	7.6
1929	270	18.9	16,800	.6	37,210	.5	61,180	11.3	80,320	.4	36,280	22.6	19,650	.8	3,530	15.0	70	....	328,200	8.4
1930	460	76.5	17,100	.6	36,530	.5	63,600	9.5	80,560	.4	38,060	21.4	19,600	.7	3,520	13.9	60	....	331,070	7.5
1931	430	93.7	17,600	.5	34,800	.4	56,720	8.2	79,930	.4	37,650	24.1	18,900	.6	3,410	11.7	40	....	315,850	7.2
1932	490	74.0	17,680	.5	34,530	.4	57,100	7.4	80,380	.4	43,630	21.0	18,850	.6	3,200	11.1	70	....	321,500	6.7
1933	540	75.1	18,270	.5	33,600	.3	56,850	8.3	78,720	.4	48,100	24.0	19,000	.6	3,400	9.3	80	....	326,850	7.7
1934	640	78.3	19,330	.6	32,650	.4	56,650	8.7	80,200	.5	52,300	20.8	19,200	.6	3,410	10.1	120	....	333,070	7.5
1935	840	75.8	19,600	.6	32,100	.3	54,600	9.1	82,050	.5	59,110	19.3	18,710	.6	3,380	11.1	130	....	340,990	8.1
1936	1,250	71.2	19,950	.6	30,950	.3	54,800	10.3	82,950	.6	66,920	18.5	18,600	.6	3,420	11.7	140	....	349,450	8.7
1937	1,920	67.2	19,900	.8	28,500	.3	55,900	11.3	82,800	.6	77,360	19.4	18,400	.6	3,350	15.5	130	....	363,030	9.8
1938	2,400	45.4	20,150	.7	27,000	.3	54,400	8.7	81,500	.6	85,600	16.0	17,700	.6	3,300	15.7	140	1.7	369,640	9.1
1939[F]	2,900	37.6	20,400	.7	25,500	.3	54,500	7.9	81,600	.6	90,740	16.2	17,400	.5	3,325	19.5	150	11.9	380,893	9.7

[A] Included under "Others." [B] Figures not available. [C] Alaska, New Mexico, Tennessee and Utah. [D] Alaska, Michigan, Tennessee and Utah. [E] Alaska, Tennessee and Utah. [F] Estimated by The OIL WEEKLY with aid of state officials and others.

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United States Maintains High Field Discovery Rate

THE United States during 1939 again experienced a remarkably large increase in the number of new sources of crude production discovered. This trend indicates that the nation's oil discovery possibilities are far from exhausted, since new fields will become harder to find at gradual rates when the time approaches that the country nears depletion of its petroleum resources. Therefore, 1940 and several additional succeeding years should see the continuation of the high rate of finding new production that has been maintained in the past several years, if operators care to drill prospective acreage.

There were 474 new sources of production found during the past year, including both new fields and new productive formations found in previously discovered areas. This represents an increase of 50 over the 424 new sources established the preceding year, and compares with 360 in 1937, while doubling the 223 such strikes made during 1936.

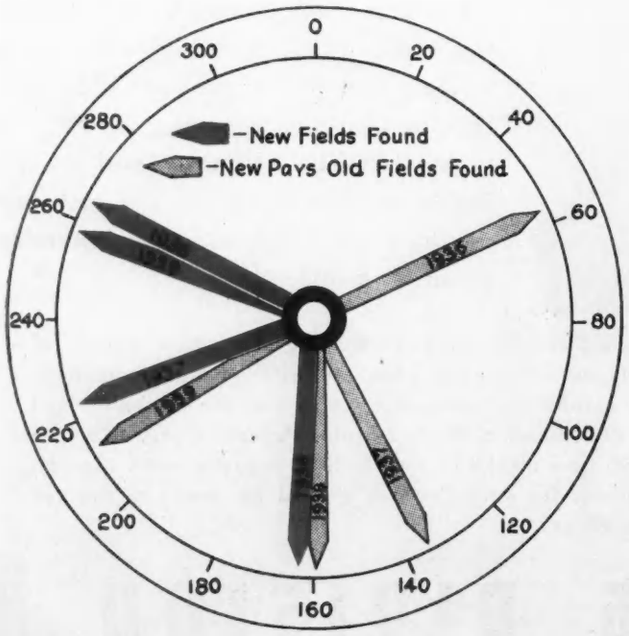
Of the 474 sources of crude production found in 1939, 259 were entirely new structures. This is practically on a level with the volume discovered in 1938, being but five less. However, new fields discovered in 1939 runs far ahead of the 224 and 165 found in 1937 and 1936 respectively.

Moreover, the 215 producing horizons in already productive structures that yielded their first oil establishes a new all-time peak, and were responsible for total new sources of supply soaring to a record level. The 215 new pay zones of 1939 compares with 160 in 1939, 136 in 1937 and only 58 in 1936.

Two Hundred Fifty Nine New Fields Found

AREA	Number New Fields Found				Number New Pay Horizons in Old Fields				Average Depth of Strikes*			
	1939	1938	1937	1936	1939	1938	1937	1936	1939	1938	1937	1936
Arkansas	3	4	3	1	..	..	2	..	6879	6207	6822	4900
California	4	8	6	7	..	5	2	..	8251	7489	7975	5950
Illinois	33	16	8	1	8	..	2	..	2500	2590	2633	1037
Indiana	11	5	1	..	7	1	..	..	1763	1708	2174	....
Kansas	33	43	52	71	17	7	5	1	2943	3396	3293	3325
Kentucky	4	3	2	1	4	1	..	1	1619	1588	1385	1362
Louisiana	14	20	19	5	59	47	19	13	8019	7185	6521	6087
North Louisiana	..	1	4	..	1	3	1	1	8901	6969	5645	5175
Louisiana Coast	14	19	15	5	58	44	18	12	8080	7400	7398	6998
Michigan	16	19	5	12	3	2	..	..	1772	2099	2970	2553
Mississippi	1	..	..	..	1	..	..	..	4719	....	....	....
Nebraska	1	..	..	..	..	..	..	..	2282	....	....	....
New Mexico	5	7	3	..	1	..	..	..	3003	....	....	....
Oklahoma	22	18	18	..	14	1	4	2	3891	4720	4177	4165
Rocky Mountains	5	8	3	3	4	2	2	2	3582	3623	3473	3721
Texas	107	113	104	64	97	94	100	39	4135	4303	4039	3842
East Texas	3	4	4	3	..	3	1	..	3260	5689	5547	4915
North Texas	34	19	20	8	16	10	10	2	2824	3190	2596	1811
Gulf Coast	10	10	15	16	10	16	18	7	7281	6921	6741	5970
South Texas	35	49	41	22	65	60	67	30	4622	4631	4175	4061
West Texas	9	12	17	9	3	..	..	..	3760	3823	3498	3877
Panhandle	1	2	1	..	..	..	2	..	2895	3126	3164	....
West Central	15	17	6	6	3	5	2	..	2006	2746	2555	2416
Total	259	264	224	165	215	160	136	58	4253	4039	4005	3694

* Depth of discovery wells of both new fields and new pay horizons.



Average Depth Increases

The average depth of the 474 discovery wells in 1939 was considerably greater than in any previous year. Their average of 4253 feet is in contrast with 4039 feet, 4005 feet and 3694 feet in the three preceding years.

The increase in average depth of new production was due largely to Louisiana and California, although others contributed also. California and Louisiana discoveries in 1939 averaged 8251 and 8091 feet respectively; the first time any states have shown such high aver-

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Mississippi's First Oil Field Found During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Tinsley	Yazoo	Union Producing Co.'s Woodruff 1, SW 13-10-3w	9-5-39	Woodruff (Selma)	4560	300	34
		NEW PAY HORIZON FOUND					
Tinsley	Yazoo	Union Producing Co.'s Stevens 1, C NW NW 13-10-3w	11-30-39	Eutaw (Blossom)	4877	500	....

Nebraska Entered Producing Ranks During Year

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Falls City	Richardson	Pawnee Royalty Co.'s Boice 1, CSL N½ NE NE 18-1n-1e.	11- 7-39	Hunton	2282	150	32.5

ages for the year. Louisiana's average in particular was noteworthy because of its volume of discoveries. Drilling in the state resulted in the finding of 14 new fields and 59 new producing horizons, whereas California's total was made up of but 4 new fields.

North Central Prominent

As to be expected, Texas contributed the majority of the new discoveries, showing up with 107 new fields and 97 new producing horizons. This is the same story told in preceding years, when the state accounted for 113 new fields and 94 new sands in 1938, and 104 fields and 100 sands in 1937.

However, the most significant development was the continued "comeback" of the North Central States (Michigan, Illinois, Indiana and Kentucky). These four states, which entered the discovery picture in big style during 1938, advanced further during the past year. They accounted for 64 new fields and 22 new producing horizons, in contrast with 55 new structures and but 4 new producing zones in 1938. A comparison with 1937 further emphasizes the "comeback" experienced by these states, as they had but 16 new fields and 2 producing strata in 1937.

Additional developments of great importance was the adding of two new producing states, Nebraska and Mississippi, to raise the number to 22. Both strikes came in the last half of the year. Nebraska's lone producer has not been exceptionally prolific or profitable, but it may be the necessary flame to set the Forest City Basin area of Nebraska, Missouri and Iowa into the picture during 1940.

Mississippi's Tinsley field had 8 producing wells at the close of the year, and appears to be a strike of considerable magnitude. The entire state and the western portion of Alabama is now undergoing an intensive geophysical and leasing play. The state is to be expected to play a prominent role during 1940. Two producing horizons have been found in the field.

Illinois Continues Pace

The most outstanding development of the year was the continued increasing success in Illinois, which after 30 years of comparative quiet started a remarkable discovery era in 1937. The state continued its rampage in 1939, and furnished an even more impressive discovery list than in 1938. A total of 41 strikes resulted from the opening of 33 new fields and the finding of 8 new producing zones in proven areas. Whereas in the preceding year the state had but 16 new fields.

Despite the discovery of 33 new fields, the opening of a new pay horizon in the state's largest field ranked as Illinois' most important development in 1939. This was the completion of a 3000-barrel well in the Devonian lime at 3502 feet in the Salem field. A goodly portion of the field's approximately 10,000 acres are expected to produce from the deeper formation, meaning that the area will be redrilled during 1940 and 1941.

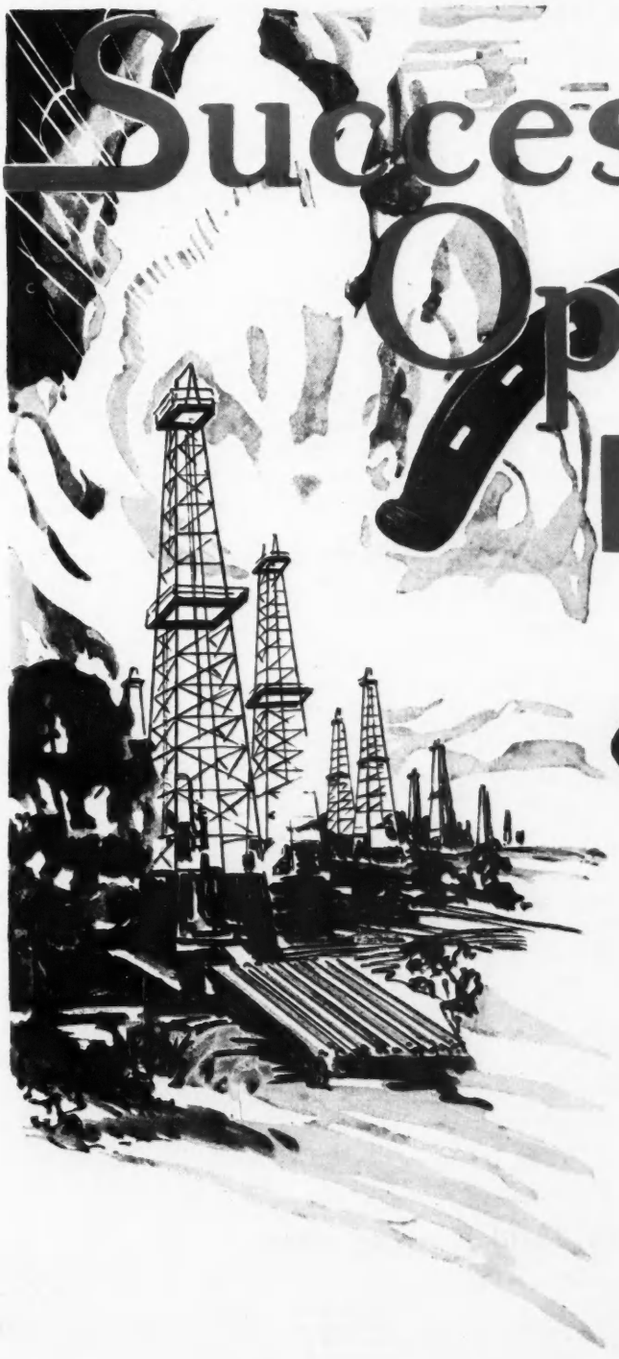
The finding of prolific Devonian production at Salem will be far-reaching, in that other fields also will be tested in this deeper horizon. Major companies that entered Illinois at the start of the new development period in 1937 did so with the intention of testing the Devonian and the deeper St. Peters. Discoveries in the Waltersburg, Cypress, Paint Creek, Bethel, and Aux Vases sands in the Upper Mississippian series, and the Rosiclare sand, and the Fredonia and McClosky limes in the Lower Mississippian, however, delayed testing of deeper formations.

The Devonian success in the Salem field, although not coming until November 21, already has precipitated testing of the horizon in other areas, and the close of the year saw this formation added to the producing zones at Bartelso and Centralia field. A heavy Mid-Continent rotary rig has been moved into the Cisne field of Wayne County to test the Lower

California Finds Only Four New Fields During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
NE. Coalinga	Fresno	Amerada Pet. Corp.'s SPL-17, SW¼, 17-19-16	5-24-39	Gatchell	8237	4230	28.3
S. Mountain View	Kern	Standard Oil, Superior Oil and Texas Co.'s Jewett 1, NE NE, 6-31-29	2-24-39	Chanac	6270	3500	31.0
Strand	Kern	Tidewater Associated Oil Co.'s KCL-E35, section 7-30-26	6- 3-39	Stevens	8320	1350	34.0
Paloma	Kern	Western Gulf Oil Co.'s KCL-A-54-3, section 3-32-26	8-31-39	Stevens	10,178	2246	50.6

Successful Operating NOT..... Just Luck



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Illinois Opened Thirty-three New Fields in 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Barnhill	Wayne	Carl Robinson's D. K. Felix 1, SW SE SE 27-2n-8e	2- 7-39	McClosky	3409	430	41.0
Cordes	Washington	G. H. Blankenship's J. L. Dennis 1, NE SW NE 14-3s-3w	2- 7-39	McClosky	1239	35	39.2
Mattoon	Coles	R. F. Wheeles & Whisenant's Michael 1, SW SW NW 1-11n-7e	2-21-39	Cypress	1919	18/20w	38.7
Enterprise	Wayne	Pure Oil Co.'s F. Behymer 1, C W½ SE NE 4-1n-8e	2-28-39	McClosky	3125	567	39.6
Goldengate	Wayne	New Penn Development Co.'s J. L. Wagner 1, NW SW NE 30-3s-9e	3- 7-39	McClosky	3441	20	38.7
Stewardson	Shelby	J. A. Aylward's Wabash R. R. 1, C N½ NE 27-10n-5e	4-18-39	Aux Vases	1969	28/3w	38.8
Hutton	Coles	W. R. Miller's Giffin 1, SE NE NE 22-11n-10e	4-25-39	Pennsylvanian	538	10/5w	....
Tonti	Marion	Arthur Harvey et al's Mercantile Bank 1, C N½ NE SE 33-3n-2e	5- 2-39	McClosky	2193	157/35w	....
Iola	Clay	Dick Duncan's J. H. Liggett 1, SE NW SE 17-5n-5e	5- 2-39	Aux Vases	2383	42/7w	....
Junction	Gallatin	Coates et al's Green 1B, SE SE SE 17-9s-9e	5-16-39	Waltersburg	1794	130	....
Griffin	Wabash	W. M. Bartlett's C. J. Stansfield 1, SW SE SE 19-2s-13w	6-13-39	Biehl, Cypress, Waltersburg, McClosky	1719	210	....
Mt. Carmel	Wabash	Clyde Washburn's Pfeifer 1, SW SW SW 13-1s-13w	6-27-39	McClosky	2556	44	....
Whittington	Franklin	Gulf Refining Co.'s E. B. Hinman 1, SE SW NE 19-5s-3e	7- 5-39	McClosky, St. Louis	3068	199/7w	....
New Harmony	White	Sun Oil Co.'s C. W. Ford 1, NW NE NE 18-5s-14w	7-11-39	McClosky	3017	20/25w	....
Mill Shoals	White	Nation et al's Belva-McIntosh 1, C SE SW 31-3s-8e	7-11-39	McClosky, Aux Vases	3405	76	....
Storms Gas	White	Eason Oil Co.'s Storms Heirs 1, C W½ SE SW 14-6s-9e	7-11-39	McClosky	3079	¶12.	....
Keensburg	Wabash	Z. D. Neff's Bump 1, NW NE NW 9-2s-13w	7-25-39	Cypress	2424	286	....
Cravat	Jefferson	R. E. Vawder's Sarah Kell 1, NE SW NE 9-1s-1e	8- 8-39	Bethel	2084	72/150w	....
Springerton	White	P. F. Marrell's C. Cox 1, NW NW NE 6-4s-8e	8-29-39	Aux Vases	3285	368	....
Grayville	Edwards & White	Kingwood Oil Co.'s Johnson 1, SE SE NE 18-3s-11e	9- 6-39	McClosky	3269	415	....
Dundas	Richland	Pure Oil Co.'s Homer C. Coen 1, SE SE SE 36-5n-9e	9- 6-39	McClosky	2930	1458	....
Stokes	White	Penn-Illinois Oil & Gas Co.'s Ulys Pyle 1, E½ SE NE 12-6s-8e	10- 3-39	McClosky	3132	423	....
Cowling	Edwards	C. G. McFadden's Charles Bump 1, C SE SW 34-2s-14w	10-10-39	Weiler	2643	240	....
Calvin	White	J. W. Carter et al's Warren A Johnson 1, NE SW NE 12-4s-10e	10-10-39	McClosky	3201	210/15w	....
Phillipstown	White	Sun Oil Co.'s H. J. Garner 1, SW SE SW 1-5s-10e	10-24-39	Aux Vases	2964	20	....
Fairman	Marion-Clinton	Shell Oil Co.'s F. Lutz 2, NW NW SE 18-2n-1e	11- 7-39	Bethel	1439	107/39w	....
Storms Oil	White	Eason Oil Co. & Engle's Storms 2, NW NW SE 14-6s-9e	11-14-39	Waltersburg	2254	302	....
Dubois	Washington	Shell Oil Co.'s M. Dix 1, C NW NE NE 19-3s-1w	11-28-39	Bethel	1370	46	....
East Keensburg	Wabash	Marvel Oil Co.'s L. Beall 1, C NE NW SW 11-2s-13w	12-13-39	McClosky	2714	287	....
....	White	Phillips Petroleum Co.'s Garner 1, SW NE NE NE 36-4s-10e	12-14-39	McClosky	2961	285	....
....	Montgomery	Henderson Bros.' Ostermeyer 1, C NW NW NW 30-10n-4w	12-22-39	Pottsville	629	50	....
Hoffman	Clinton	Pray & Bell's Knolhoff 1, SW 2-1n-2e	12-23-39	Benoist	1329	50	....
....	White	Bishop, Harrington & Bush's G. Griffin 1, S½ SE SE SW 28-3s-9e	12-26-39	McClosky	3492	100	....

NEW PAY HORIZONS FOUND

St. James	Fayette	Glasco & Lewis' Wagner Heirs 1, NW NW NE 30-6n-3e	2-15-39	Benoist	1775	25	....
North Noble	Richland	Pure Oil Co.'s F. Wakefield 6, NW NE NE 26-4n-9e	2-21-39	McClosky	3050	157	....
Clay City	Richland	Pure Oil Co.'s Clay City Bank 6-A, C W½ NE NE 7-2n-8e	8-14-39	Cypress	2500	95	....
Cisne	Wayne	Pure Oil Co.'s Johnson A-1, 27-1n-7e	11- 1-39	Rosiclare	3100	400	....
Salem	Marion	Magnolia Petroleum Co.'s W. B. Young 24, NW SW NW 20-2n-2e	11-28-39	St. Louis	2230	288	....
Salem	Marion	Kingwood Oil Co.'s Shanaflet 18-A, NE NW NE 20-2n-2e	11-21-39	Devonian	3502	3024	....
Bartelso	Clinton	Paul Moseback et al's B. C. Robbin 1-B, SE SW SE 5-1n-3w	12- 1-39	Devonian	2431	480	....
Centralia	Marion & Clinton	Louis Lilly et al's Dave Gum 1, NE Lot 24, Block 1, Pullen Subdivision 3, Centralia Townsite	12-23-39	Devonian	2933	715	....

¶ Indicates million cubic feet of gas.

18/20 Indicates 18 barrels oil and 20 barrels water.

Indiana Adds Eleven New Fields During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Rockport Gas	Spencer	W. W. Damron's Shelby Wright 1, SE SW NE 19-7s-6w	4-19-39	Pennsylvanian	893	¶5.	....
Rockport Oil	Spencer	F. L. Damron's Cora Niles 1, NW NE 2-8s-7w	5- 3-39	Palestine	1412	20	....
....	Posey	Clint Crosby's Pauline Scherer 1, NW SW 13-7s-13w	5-20-39	McClosky	2720	75	....
Chandler	Warrick	McWilliams & Schwartz' Jas. S. Brammer 1, NE NE 14-5s-9w	5-24-39	McClosky	1960	70	....
New Harmony	Posey	Superior Oil Co.'s New Harmony Realty Co. 1, NW SW 10-5s-14w	6- 6-39	McClosky, Waltersburg	2985	252	....
....	Gibson	Midwest Development Corp.'s L. M. Corn 1, C NE NW 22-2s-9w	6-22-39	Cypress	1449	15	....
....	Spencer	Trio Oil Co.'s Frank R. Swallow et al 1, SW SE 32-6s-7w	7-16-39	McClosky	1005	15/20w	....
Mackey	Gibson	A. J. Walker's Oscar Schmidt 1-A, SE SW 13-3s-9w	7-26-39	Pennsylvanian	965	35/35w	....
....	Posey	Haynes & Thomas Drilling Corp.'s W. & M. A. Seifert 1, NW SE 19-6s-12w	8-30-39	Pennsylvanian	409	25	....
....	Jasper	United Development Co.'s O. & M. Woodruff 1, SE SW 28-31n-5w	9-19-39	Trenton	1011	10	....
....	Knox	Longhorn Oil Corp.'s Dr. Virgil McCarthy 1, C SE NW 13-2s-11w	10-30-39	Bethel	2200	10	....

NEW PAY HORIZONS FOUND

Griffin	Gibson	W. F. Lacy's Cooper-Thomas 1, NW SW SW 18-3s-13w	5-12-39	Cypress	2728	500	....
Rockport Oil	Spencer	F. L. Damron et al's E. Miller 1, NE NE NE 2-8s-7w	7- 5-39	Aux Vases	1510	50	....
Griffin	Gibson	Continental Oil Co.'s Bozeman Land Co. 1, NW SW NW 24-3s-14w	7-14-39	Weiler	2535	1000	....
Griffin	Gibson	Lewis Production Co.'s Cooper Estate D-6, SE 12-3s-14w	11-19-39	Jett (Tar Sprs.)	2141	200	....
Griffin	Posey	Roberts Bros.' Bob Keck 1, NW NE NW 34-3s-14w	10- 4-39	Aux Vases	2799	100	....
Rockport Oil	Spencer	Kelly, Thomas & Flanders' C. Niles 1, C SW SE 35-7s-7w	10-10-39	McClosky	1654	150	....
Francisco	Gibson	Midwest Dev. Corp.'s H. J. Bryant 1, NW NE 15-2s-9w	12- 1-39	Cypress	1362	165	....

¶ Indicates million cubic feet of gas.

Four New Fields Added During 1939 in Kentucky

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Belton	Muhlenberg	Fred Phillips' Shearn Coal Co. 1, SEc SW Lot 7, Shearn Block	1-25-39	McClosky	1542	280	....
Croydon	Henderson	Sun Oil Co. & Kentucky Natural Gas Co.'s G. Trigg 2	2-21-39	McClosky	2605	335	....
....	Henderson	Springrose Drilling Co.'s Pillman 1	4-10-39	McClosky	1972	400	....
....	Davies	J. C. Preston's Abell 1	5-10-39	McClosky	1422	200	....
NEW PAY HORIZONS FOUND							
Livermore	McLean	J. C. Ellis' Stevens Heirs 1	3-20-39	McClosky	1640	200	....
Birk City	Daviess	Stewart & Snyder's A. A. Westerfield 1	5- 2-39	Waltersburg	1028	100	....
Utica	Daviess	James C. Ellis et al's A. T. Hansford 1-A	6-10-39	McClosky	1815	100	....
Maceo	Hancock	Jack Cox's L. R. Waitman 1	7-20-39	Jackson	928	20	....

St. Peter. Started at the year's close, it will mark 1940 as the first test of this formation in an area considered favorable for oil accumulation.

While Illinois' 33 discoveries included several "duds," they also included sufficient fields of importance or promise to expand the area's expectations. Almost two thirds of the year's discoveries were made during the last six months, indicating the state was continuing to increase its pace that has featured its new development period.

Although running far behind other 1939 fields in number of completions, the Storms field of White County appeared to be the state's most important 1939 new producing area. This field, on a large structure, was opened with a gas well in July. It was without further development until completion of an oil well in the Waltersburg sand in mid-November. Acreage on the structure is widely held. Seventeen producers, including 3 gas wells, and 2 dry holes, had been completed at the end of the year. Thirty other tests were drilling or preparing to drill.

The tendency toward deeper drilling in the basin area was further reflected in 1939 discoveries. White County, which was without an oil field as the year opened, had 11 fields on December 31, and with two exceptions they were opened at depths exceeding 3000 feet.

Indiana Success Higher

Adjoining Indiana profited by the activity in Illinois, and became an active discovery spot during the year. The state's 11 new fields, however, saw little development during their discovery year, principal attention being directed to the Griffin field opened late in 1938 in Gibson County and which has since spread into Posey County, Indiana, and across the Wabash River into Wabash County, Illinois.

Opening of three additional horizons on the Indiana side of the Griffin field had a greater bearing upon Indiana development in 1939 than any, and perhaps all, other of the year's new discoveries.

Indiana's 11 new producing structures were assisted by the finding of 7 new producing horizons in proven areas, whereas in 1938 the state had but 5 new fields and 1 new producing formation to its credit.

Kentucky, another member of the Illinois Basin area, while more successful than in the preceding year did not come up to the levels achieved by either Illinois or Indiana. Four new fields and a similar number of new producing zones were found in this state, compared with three fields and 1 new pay horizon in 1938.

Michigan Active

More wells were drilled and more oil produced in Michigan during 1939 than ever before in its history. However, out of the 16 new fields discovered, none appeared to be important.

The swing of development out of the basin and 3500- to 4000-foot Dundee-Monroe lime to Southwestern Michigan's 1000- to 2000-foot Traverse formation started in 1938 but reached a more marked degree last year. Wildcatting was concentrated in this area in at-

Sixteen New Fields Discovered in Michigan During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Hopkins	Allegan	Bell-Marks, Inc's Brower 1, NW SW NW, 23-3n-12w	2- 3-39	Traverse	1639	250	41
Bangor	Van Buren	Blood-Hendershott's Jackson 1, NE NE NE, 29-2s-16w	3-14-39	Traverse	1008	350	38.9
South Columbia	Van Buren	Clapsaddle-Harris' Been 1, NW NW NW, 24-1s-15w	3-21-39	Traverse	1162	800	41.1
Gobles	Van Buren	C. C. Goff's Miller 1, NW NW NE, 24-1s-14w	3-22-39	Traverse	1355	500	41
Tallmadge	Ottawa	Carscallen's Longnecker 1, SE SE SE, 4-7n-13w	3-31-39	Traverse	1999	19	42.2
Berlamont	Van Buren	T. F. Caldwell's Leahy 1, SE NW NW, 18-1s-14w	4- 5-39	Traverse	1215	425	40
South Wyoming	Kent	Crown Dev. Co.'s Rogers 1, SE NE NW, 14-6n-12w	6-23-39	Traverse	2255	20	43
Tallmadge	Ottawa	Smith & Stroms' Wisniswski 1, SE SE SE, 27-7n-13w	7-20-39	Traverse	1894	25	41
Zeeland "25"	Ottawa	Chapman Oil Co.'s DeKline 1, NE SE SE, 25-5n-14w	8-29-39	Traverse	1667	15	40.3
Zeeland "5"	Ottawa	Freman Oil Co.'s Huyser 1, SW SE SE, 5-4n-14w	9- 9-39	Traverse	1652	100	38.9
Porter	Van Buren	R. T. & E. Corp.'s Tyson 1, SW SW SW, 18-4s-13w	10-20-39	Traverse	1164	25	....
Silver Creek	Cass	Silver Creek Oil Co.'s Flynn 1, NW SW NW, 23-5s-16w	12- 5-39	Traverse	827	6	....
Walker	Kent	Wolverine Nat. Gas. Co.'s Huntly 1, NE SW SE, 32-7n-12w	3-17-39	Berea	1149	¶3.7	....
Tallmadge	Ottawa	Smith & Strom's Wisniswski 1, SE SE SE, 27-7n-13w	7-20-39	Berea	1120	¶9.	....
Polkton	Ottawa	Daily Crude Oil Co.'s Herman 1, NW NW NE, 11-8n-14w	10- 3-39	Berea	1235	¶ .25	....
Wright	Ottawa	Daily Crude Oil Co.'s Hambelton 1, NW NW NW, 19-8n-13w	12-21-39	Berea	1196	¶3.5	....
NEW PAY HORIZONS FOUND							
Mills	Ogemaw	T. F. Caldwell's State 1, SW NE SW, 6-21n-3e	3- 3-39	Monroe	3637	22	39
Monitor	Bay	Gulf Ref. Co.'s Bateson 1, SE SE, 2-14n-4e	6- 1-39	Monroe	3817	55	39.1
Buckeye	Gladwin	Wicklund Dev. Co.'s State A2, SE SW SE, 11-18n-1w	11-15-39	Dundee	3670	65	39.7

¶ Indicates million cubic feet of gas.

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2. A Rotary Jar of the straight-pull type for use with releasing fishing tools of many types. Delivers a sharp upward or downward blow.

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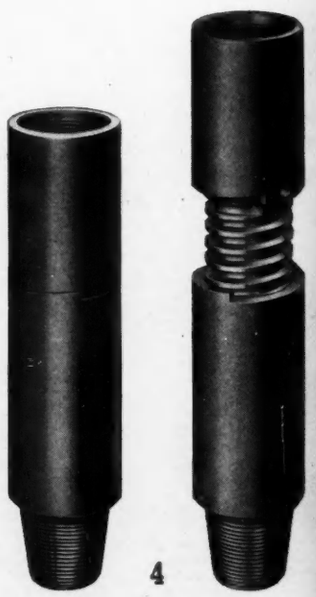

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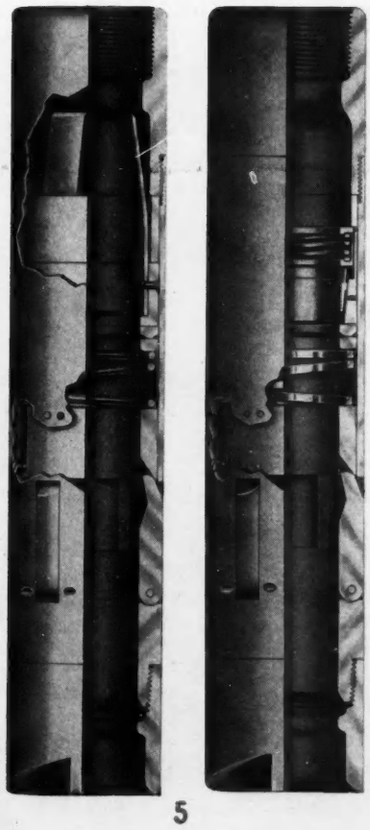

5

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6. Made for cutting all sizes of casing and tubing, and drill pipe with full-hole or internal flush tool joints. Makes several cuts during one run into the hole.

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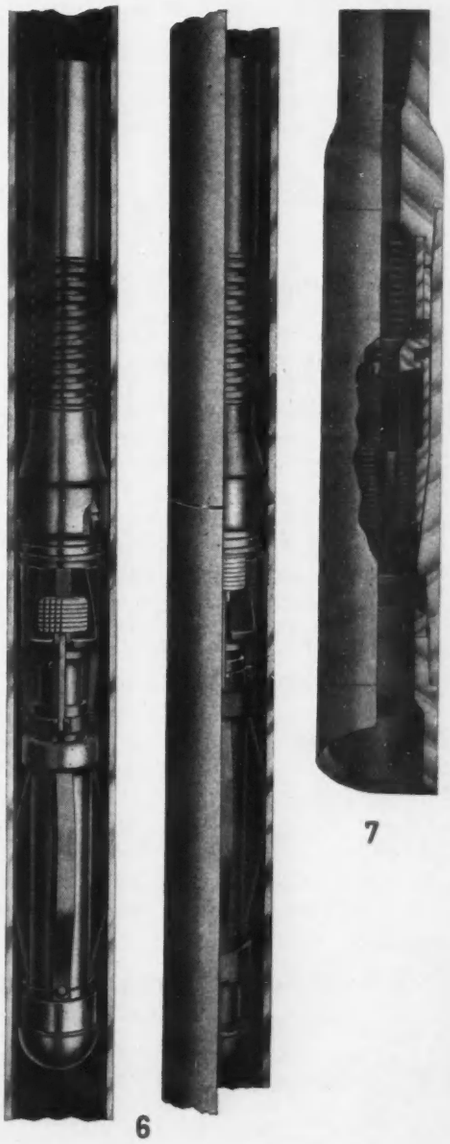
5. Offers most rapid means of removing stuck drill pipe. Deepest cutting job ever performed (Continental Oil Co. No. 1 Proctor, Washita County, Oklahoma) was done with this cutter.



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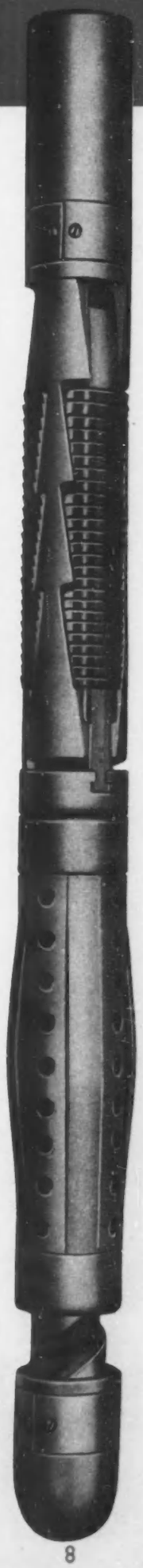


8

-ROSS

New Mexico Operators Open Five New Fields During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Gates	Eddy	Martin-Jones et al's Gates 1, SE SE SW 15-18s-30e	8-30-39	Permian	3245	178	36
High Lonesome	Eddy	B. H. Nolen et al's Isles 1-A, SEc 17-16s-29e	11- 1-39	Permian	1824	45	36
	Eddy	C. S. Powell et al's Smith 1, NWc NE 6-17s-29e	4-20-39	Permian	2436	¶.75	....
Loco Hills	Eddy	Martin Yates et al's H. E. Yates 1, C NW SW 6-18s-30e	2-14-39	Permian	2874	560	36
Halfway	Lea	Westlea Oil Co.'s (F. M. Farley's) State-Texaco 1-A, C NE SW 16-20s-32e	10-18-39	Permian	2629	1050	28.6
		NEW PAY HORIZON FOUND					
Lovington	Lea	Skelly Oil Co.'s State 1-N, C NW NE 36-16s-36e	1- 8-39	Permian	5012	110	37

tempts to open additional shallow fields.

Chief developments of the year centered in Kent and Ottawa counties, in the Walker-Tallmadge field. Discovered in 1938, but extensively developed until the spring of '39, it was extended to cover approximately 2800 acres on December 31.

Cass County, where a wildcat was completed for 6 barrels a day at the record shallow depth of 827 feet for the state, Jackson County and Barry County where wildcats were showing for possible commercial Traverse production, loomed as Michigan districts likely to receive extensive attention early in 1940.

New Mexico

Discovery of the Loco Hills field, Eddy County, materially fortified New Mexico with acreage to drill during the current year. The strike proved timely as older fields in Lea County, which has been the most active drilling center in the state for nearly a decade, are confronted with a gradual tapering off of development.

Loco Hills, discovered in February, 1939, finished the year with 74 wells and an aggregate of 6100 acres, extending generally to the west and southwest of the original completion.

Eddy County contributed 4 of the 6 discoveries reported for the state. Other than the Loco Hills strike, the only discovery that gives any promise of attracting an important drilling program is the Gates 3200-foot pool, which was being extended to the east and west at the close of the year to indicate that it may embrace a sizeable area also.

Lea County's only important offering was the development of oil production at Lovington, which previously proved for dry gas in the upper lime. Thirty-one oil wells were completed during the year, with little likelihood of the field being expanded beyond its indicated 1400 acres.

West Texas Slackens

Discoveries in West Texas remained below normal for the second consecutive year. The district accounted for only 9 new oil areas, and none offer any immediate prospects of supporting large-scale drilling programs. However, development was generally active in 1939, and will continue about the same rate of drilling the current year as result of the expansion of older fields, particularly in Ector, Gaines and Yoakum Counties.

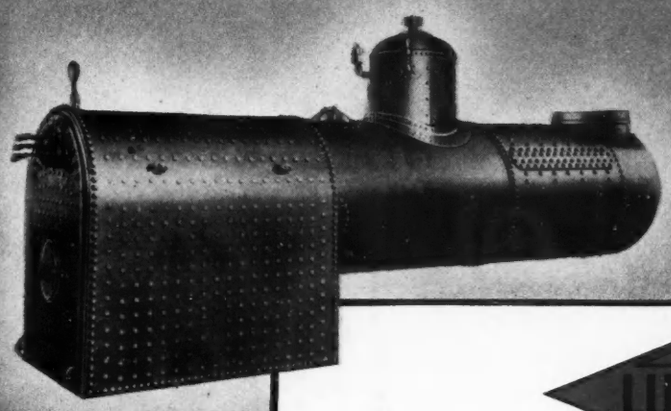
The finding of a deeper oil zone in the Permian, and the opening of new production trends in Gaines and Pecos Counties proved to be the most important events the past year.

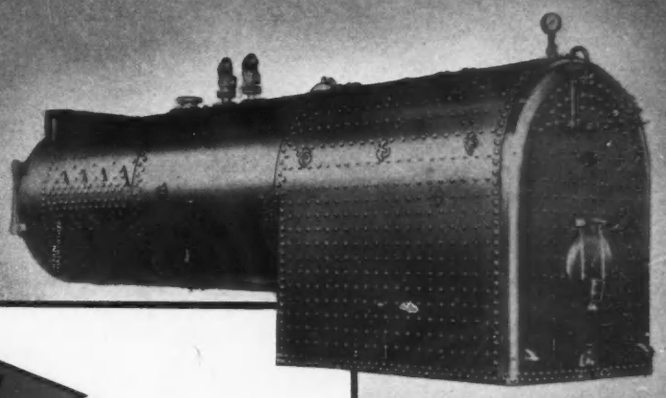
Central portion of the Permian

West Texas Operators Opened Nine New Fields During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Cedar Lake	Gaines	Stanolind O. & G. Co.'s J. B. Rayner 1, C SW SW PSL Sec. 3, Blk. C-30	9-18-39	Permian	4470	1079	32.7
Tipton	Nolan	Green-Owens-Metcalf & Halloran's C. H. Tipton 1, near SE NW SW T. & P. Sec. 43, Blk. 19	Dec.	Pennsylvanian	5171	25	40
Apco	Pecos	Anderson-Prichard Oil Corp. & Monte Warner's J. S. Masterson 1, C S½ N½ H. & G. N. Sec. 104, Blk. 10	6- 1-39	Ellenberger	4595	424	40.4
Lehn	Pecos	W. E. Keeney et al's (A. Leidecker-H. L. Cain's) M. Lehn-Texaco 1, 330 ft. from ne and 330 ft. from se lines H. & G. N. Sec. 71, Blk. 10	6-21-39	Permian	1743	13	29.1
Lehman	Pecos	O. E. Schkade et al's C. S. Lehman-Cities Service 1, 990 ft. from w and 2450 ft. from s lines, H. & G. N. Sec. 107, Blk. 8	Dec.	Permian	59	15	17
Opp	Schleicher	H. B. Opp et al's J. T. Jackson 1, near SW NW NE T. C. Ry. Sec. 41, Blk. LL	9- 2-39	Cisco Lime	4081	106	34
Boyd	Stonewall	Forest Development Corp.'s Boyd 1, near C NW NE H. & T. C. Sec. 45, Blk. D	5-17-39	Palo Pinto	4724	155	39
	Taylor	Tal-Vez Oil Co.'s D. T. Hopper 1, 300 ft. from n, 750 ft. from e lines Sub. No. 21, Guadalupe C. S. Lands, Sur. No. 120	3-13-39	Pennsylvanian	2292	¶3¼	....
Waples-Platter	Yoakum	Shell Oil Co.'s Waples-Platter Co. 1, SW SW NW Sec. 616, Blk. D, J. H Gibson Sur	July	Permian	5305	173	32
		NEW PAY HORIZONS FOUND					
North Cowden	Ector	Gulf Oil Corp.'s O. B. Holt 1, SE SE SW PSL Sec. 1, Blk. A	6-23-39	Lower Permian	5168	217	34.6
Beddo	Runnels	H. Price-A. E. Koener & Art Tucker's J. C. Beddo 2, 1130 ft. from s and 1980 ft. from e lines S½ Sub. 51, D. Diaz Sur. No. 532	9- 1-39	Sarratt	2365	33	40
Page	Schleicher	Lone Star Gasoline Co.'s Bert Page-Humble 1, C E½ NW NE G. H. & S. A. Sec. 30, Blk. L	6-18-39	Strawn	5746	259	42.2

¶ Indicates million cubic feet of gas.





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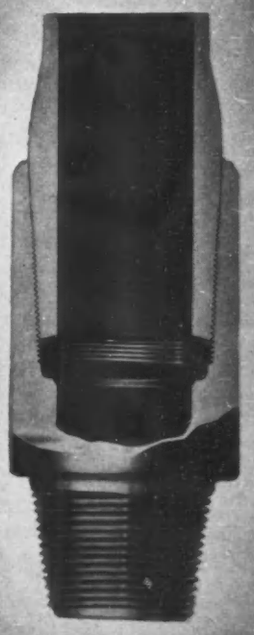

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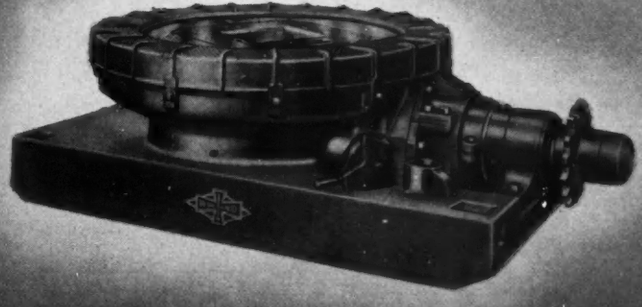

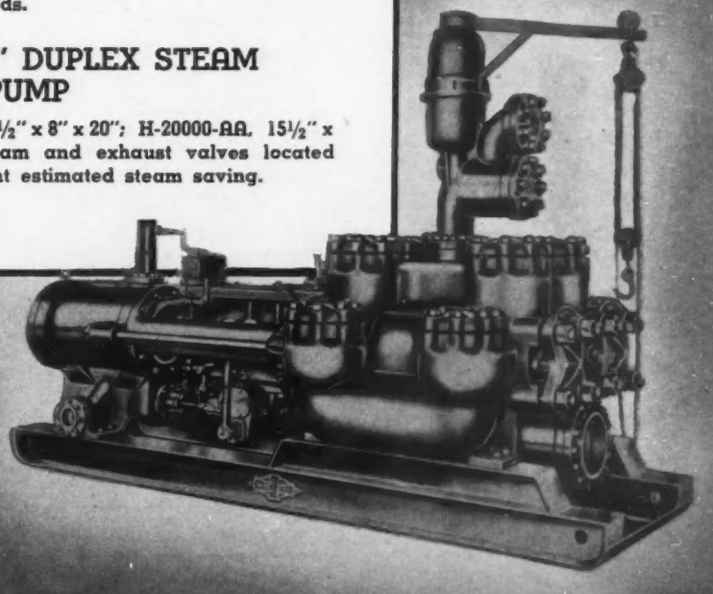

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Three New Fields Opened in East Texas During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
McHenry	Angelina	K. L. McHenry et al's Mrs. J. S. Russell 1, 3155 ft., from s and 11,385 ft. from w lines, A. Flores Sur., 4 mi n Lufkin	5- 9-39	Cane River	1021	3	25
Mabank (Rowe-Baker)	Henderson	A. J. Tyler-C. C. Smith et al's Rowe-Baker 1, 1160 ft. from w and 150 ft from s lines, J. T. Childers Sur	4-11-39	Woodbine	3147	70	32
Barron	Limestone	M. Samuell & Zephyr Oil Co.'s C. Barron 1, 440 ft. out of SWc of 360-acre tr., W. G. McKenzie Sur. A-7, 4 mi sw Groesbeck	11-15-39	Pettit	5611	¶13.7	....

¶ Indicates million cubic feet of gas.

Basin will experience considerable deep exploratory drilling this year as result of the finding of 5100-foot flowing production on the west edge of the North Cowden field, Ector County. This new zone has been named the Holt pay, and is in the lower middle Permian section, being approximately 1000 feet below the regular oil level.

First Ordovician production for Pecos County was among the new oil discoveries the past year. The strike was made adjacent to shallow production in the Masterson-Shearer area and along the Fort Stockton high, which is known to afford a series of deep seated structures as outlined by geophysics. Production is from the Ellenberger lime near the 4500-foot level.

The discovery of the Cedar Lake pool, northeastern Gaines County, affords possibilities of a new production trend to the east of the group of fields in the north portion of the Permian Basin. The discovery and offsets lacked sufficient gas to flow steady after nitro shot and acid treatment, but made creditable initial ratings by flowing with input air and gas mixture from a shallower zone. The Cedar Lake structure as outlined by geophysical data plus dry holes to the east and west embraces a large area.

The Slaughter and Duggan fields, situated on the north end of the Permian producing belt in West Texas, were virtually united the past year by intermediate completions. The combined areas are subject to major extensions, with about 20,000 acres definitely proved for oil production. They are currently dependent upon a local refinery for crude outlet, and will require a trunk line connection before drilling can attain large proportions.

The surprise development was provided by the Sharon pool, Scurry County, which came to the front with an active drilling campaign, although the most northerly and southerly wells were completed in 1938.

North Texas Successful

Oil discoveries and new producing horizons given North Texas the past year proved conclusively that this 35-year old oil district will remain among the active drilling centers in the Southwest. Exploratory work accounted for 35 pools and fields, and 16 oil and gas zones were added to previously established areas, thereby mate-

West Central Texas Adds Fifteen New Fields During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
.....	Brown	Curtis Norman et al's S. Rice 1, near C NW Lot 2, Blk. 127, Chas. Messer Sur	4- 4-39	Caddo	997	8	40
Scranton	Callahan	L. A. Warren et al's B. P. Cozart 1, 330 ft. s and 1700 ft. w of SWc H & T C Sec. 132 Blk. 3, but in M. Cherry Sur. A-110	4-21-39	Cisco	1675	61	38
.....	Callahan	L. A. Warren et al's R. D. Williams-Wittmer 1, 960 ft. from n and 2950 ft. from w S. P. Ry., Sec. 302	7-18-39	Cisco	596	7	37
.....	Coleman	Anzac Oil Corp. & Semmes' J. P. Morris 4-C, 5200 ft. from n and 7060 ft. from w D. Breeding Sur. 728	5-22-39	Strawn	2191	2200	40
New Carbon	Eastland	W. J. Dobbs Oil Corp.'s W. J. Greer 1, 330 ft. out of NWc J. E. Hardy Sur	5-26-39	Caddo	2660	87	40
Appling	Jones	Gregg Oil Co. et al's C. D. Appling 1, near SW NW SW B B B & C Ry. Sec. 32	3- 9-39	King Sand	2638	412	32
Carroll	Jones	G. T. Kimball-C. L. Bohner & R. R. Carroll's Herndon 2, 330 ft. out of NEc Sub. 3, Goliad C. S. L. Sur 359	12-12-39	Pennsylvanian	2895	10	41
Blanton	Jones	Kittery Oil Co.-J. L. Douglas' J. M. Blanton 1, 550 ft. from s and 1200 ft. from w lines S. L. Underwood Sur. 1	7- 8-39	Cisco Series	1632	53	35.7
Davis	Jones	N. H. Martin & Sons' Wirt Davis 1, 150 ft. out of SWc Sub. 7, Mrs. F. M. Smyth Sur. 3	9-11-39	Cisco Series	1716	35	36
Nichols	Jones	J. H. Sproule et al's J. Nichols 1, 668 ft. from n and 150 ft. from w lines of N-160 acres of E-215 acres T & P Sec. 47, Blk. 16	2-18-39	Tannehill	1791	15	36
.....	Shackelford	B. & F. Bonded Cotton Warehouse Co.'s E. Spell 1, near NWc Sec. 14, Blind Asylum Lands	9-13-39	Cisco	622	5	36
.....	Shackelford	Fain-McGaha Oil Corp. et al's E. S. Dawson-Conway 1, 535 ft. from s & 700 ft. from e lines P. G. Holcomb Sur.	9-18-39	Bluff Creek	1496	37	38
.....	Shackelford	Roeser-Pendleton, Inc-Continental Oil Co.'s Cook 2-A-89, near C NW E. T. Ry. Sec. 89	7-29-39	Cook	1464	¶3.	....
Stroud	Stephens	T. G. Shaw, Tr.'s S. P. Stroud 1, 660 ft. from SEc NW G. W. Newton Sur. A-128	10-21-39	Kisinger	2602	140	38
Loving	Stephens	Wittmer O. & G. Properties-Knight & Ewing's B. D. Loving 1, near SEc, Sec. 66, Blind Asylum Lands	9-10-39	Caddo	3512	1200	42
		NEW PAY HORIZONS FOUND					
Dalton	Palo Pinto	Post Oak Oil Co.'s R. S. Dalton 1, NE¼ Sec. 1789, T. E. & L. Co. Sur	2- -39	Cisco	1240	12	38
Rich	Stephens	Lone Star Gas Co.'s McKee 1-A, NWc S½ T. & P. Ry. Sec. 39, Blk. 7	3-25-39	Ellenberger	4110	267	40
Loving	Stephens	Wittmer O. & G. Properties-Knight & Ewing's B. D. Loving 2, C NW NE Sec. 11, Orphan Asylum Lands	11-28-39	Cisco	2263	¶6.	....

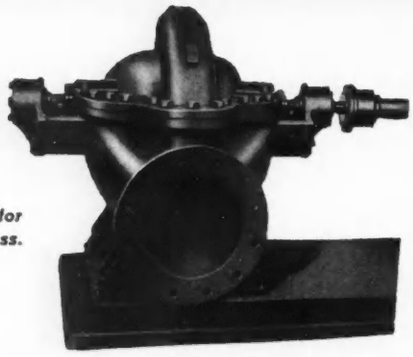
¶ Indicates million cubic feet of gas.

Thirty-four New Fields Opened in North Texas During 1939

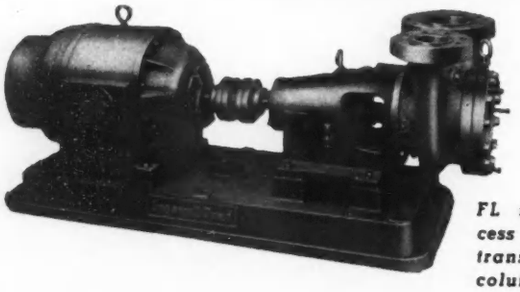
Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Mankins	Archer	British-American Oil Producing Co.'s T. B. Wilson 1, 330 ft. out of NWc H. & T. C. Sec. 12, Blk. 3	5-29-39	Caddo	4695	888	43
	Archer	P. C. Burns et al's N. I. Andrews 1, 750 ft. from s & 150 ft. from w lines, Blk. 1, G. C. Farley Sur. A-129	2-15-39	Cisco Series	925	102	40
	Archer	Chambers & Hanks' R. D. Andrews 1, NW SE T. E. & L. Co., Sec. 1806	6-20-39	Cisco Series	907	21	40
	Archer	Cree-Hoover et al's J. H. Turbeville 1, 750 ft. from s and 550 ft. from e lines, Sec. 157, Robt. Carson Sur.	1-17-39	Cisco Series	1494	58	40
Griffin	Archer	Deep Oil Dev. Co.-Griffin's (Eph Griffin's) W. T. Waggoner 1, 456 ft. from s & 660 ft. from e lines H. & T. C. Sec. 3, Blk. 4	3-11-39	Strawn	4410	760	42
	Archer	R. C. Hart et al's J. D. Carpenter 1, 650 ft. out of SEc Sec. 38, Blk. 4, Clark-Plumb Sub	6-21-39	Cisco Series	909	14	38
Kadane	Archer	G. E. Kadane & Sons' Joe Hemmi 1, 466 ft. out of NEc Sec. 60, Blk. 3, Clark-Plumb Sur	July	Bend Lime	5294	60	40
Shell	Archer	Shell Oil Co.'s E. Colgan 1, 1100 ft. out of SEc J. M. Martin Sur. A-276	11- 6-39	Swastika	1461	133	40
Sikes	Archer	Louis Sikes et al's Walter Ford 1, 660 ft. from n & 990 ft. from e lines T. Cecil Sur. A-982	2- 8-39	Strawn	4412	218	40
	Archer	Young & Bernhard's H. L. Morrison 1, 831 ft. from n & 450 ft. from w lines, T. E. & L. Co. Sec. 2403	7-10-39	Swastika	1293	31	38
Halsell	Clay	Bridwell Oil Co.'s Furd Halsell 1, 3292 ft. e and 920 ft. s of SEc John Rogers Sur., but in Blk. 16, Washington County Ry. Sur. A-976	4-28-39	Strawn	4793	1272	40.5
Burns	Clay	L. T. Burns et al's A. L. Browning 1, 330 ft. out of SEc Blk. 94, J. H. Belcher Sur	3-11-39	Strawn	4461	900	44
Jolly	Clay	Continental-Superior Oil Co. (Cal.)-A. R. Dillard's Ross Bros. 1, 1650 ft. from n and 330 ft. from w lines, Blk. 31, W. Walker Sur. A-703	12-12-39	Bend Lime	5400	1136	43
Kinder	Clay	Frabor-Hodges Corp.-Sinclair Prairie Oil Co.'s R. C. Kinder 1, 330 ft. out of NEc Lot 11, Blk. 2, Clark-Plumb Sur	8-27-39	Strawn	4158	157	39
Taylor	Clay	E. N. Costley et al's C. T. Taylor 1-C, 450 ft. s of Wichita River and 150 ft. from sw line, Blk. 41, Bacon Sub	11-10-39	Cisco Series	1074	240	41.5
S. Muenster	Cooke	Jas. C. Roberts et al's Truebenbach 1, 330 ft. from e and 1030 ft. from s lines, Blk. 3, J. E. Littleton Sur. A-586	12-15-39	Pennsylvanian	1670	9	36
TCU	Cooke	J. M. Russell et al's H. W. Stark-TCU 1, 330 ft. out SEc W. A. Lynn Sur. A-1572	7-10-39	Pennsylvanian	1143	109	30
	Grayson	C. E. Marshall et al's F. Christman 1, 330 ft. from s & 660 ft. from w. lines, M. L. Ahalt Sur. A-1427	1-18-39	Cisco Series	840	8	44
	Jack	R. D. Compton et al's Robt. Wilson 1, 1250 ft. from n & 2000 ft. from w of H. H. Fuquay Sur. A-217	2-22-39	Cisco Series	386	20	37
Bridwell	Jack	Nelson Oil Synd's O. M. Bridwell 1, 466 ft. out of SWc T. B. Riddle Sur. A-1647	8-16-39	Marble Falls	4405	1660	40
	Jack	Pitzer-West et al's F. Warren 1, 850 ft. out of NEc T. E. & L. Co., Sec. 2784	2-26-39	Marble Falls	4418	167	40
	Jack	A. E. Sewell et al's Geo. Edwards 2, 450 ft. out of NWc BBB & C Ry. Sur. A-104	2-15-39	Cisco Series	344	5	36
Bonita	Montague	Benton-Holmes et al's Joe Bowers 1, 400 ft. from s & 450 ft. from e lines MEP & P Ry. Sec. 55	April	Strawn	2958	76	40.6
Nocona (Rogers)	Montague	Rogers & Rogers' (Youngblood-Foree's) J. A. E. Burnett 1, 1678 ft. from n & 1012 ft. from e lines, J. Lenow Sur. A-433	1- 4-39	L. Strawn	4656	523	43
	Throck-morton	Payne & Patterson's R. W. Kelly 1, 350 ft. from s & 760 ft. from e lines, SW¼ Sec. 2, J. B. Graham Sur. A-1421	April	Cisco Series	778	23	36
Underwood	Wichita	Underwood Oil Co.'s W. P. Rogers 1, 1600 ft. from n & 2300 ft. from w lines 250-ac. tr., Geo. Wheelwright Sur. A-320	11-15-39	Cisco Series	1206	25	40
Consolidated	Wilbarger	Consolidated Oil Co. et al's W. T. Waggoner 1-CC, NW SE SE H. & T. C. Sec. 36, Blk. 6	8- 7-39	Strawn	4065	248	40
Pois-Schulz	Wilbarger	Pois-Schulz et al's J. P. King 1, 450 ft. from n & 1318 ft. from w lines, Sec. 2, Day L. & C. Co., Sur. A-1315	8-30-39	Cisco Series	1902	388	38
	Young	R. R. Brader-O. Groves et al's J. L. Clark 1, 100 ft. s and 1760 ft. w of ne corner C. Newhaus Sur. A-1814	Feb.	Bend	3865	43	40
	Young	C. W. Clark et al's H. M. Goss 1, 450 ft. from n & 650 ft. from w lines, T. E. & L. Co. Sec. 1592	Feb.	Cisco Series	1207	4	40
	Young	E. W. Hunt et al's H. M. Goss 1, 1216 ft. from s & 1100 ft. from e lines, T. E. & L. Co. Sec. 1592	Oct.	Cisco Series	1221	5	40
	Young	G. A. Langlie-R. G. Flato-Geo. Haddaway's T. F. Harmon 1, 1725 ft. from w & 1630 ft. from n lines of Susan Sallie Sur. A-252	March	Cisco Series	590	8	40
	Young	Carl Leibecker-Bryson O. & G. Co.'s J. M. Nall 1, 250 ft. from s & 660 ft. from w T. E. & L. Co. Sec. 1997	June	Marble Falls	4465	1248	40
	Young	K. R. March et al's Hunt-McClatchey 1, 150 ft. from e & 2150 ft. from n lines, T. E. & L. Co. Sec. 79	March	Larrimore	1134	40	38
NEW PAY HORIZONS FOUND							
Griffin	Archer	Eph Griffin et al's W. T. Waggoner 1-A, 466 ft. from e & 1389 ft. from s H. & T. C. Sec. 3, Blk. 4 (PB from 4803 ft.)	5-25-39	Cisco Series	1639	56	38
Walnut Bend	Cooke	Sinclair Prairie Oil Co.'s J. M. Best 10, 2310 ft. from n & 330 ft. from e lines, T. Toby Sur. A-1054	7- 7-39	Simpson	5381	516	34.2
Bonita	Montague	Benton-Holmes et al's Joe Bowers 2, 330 ft. from n & 400 ft. from e lines, se MEP & P Sec. 55	7-16-39	L. Strawn	3869	540	37.6
Bonita	Montague	United Producers Co.-Continental Oil Co.'s W. R. Rich 1, 150 ft. from n & 2499 ft. from e of G. R. Jaquez Sur. A-393	12-10-39	M. Strawn	3509	48	38
Nocona	Montague	Stanolind O. & G. Co.'s Kate Davis 2, 467 ft. from s & 1074 ft. from e lines, Lot 59, W. J. Wells Sur. A-844	12-21-39	Bend Lime	5255	1920	40
Nocona	Montague	L. S. Youngblood-Foree et al's Kate Davis 1, 142½ ft. from w & 4990 ft. from n, J. D. Jennings Sur A-389	8-30-39	U. Strawn	4338	1200	43
	Throck-morton	Industrial Oil Corp.-A. G. Bedner's T. Morrison 1, 766 ft. from s & 2332 ft. from w. T. E. & L. Co. Sec. 1614	4-1- 39	Cisco Series	832	12	36
K-M-A	Wichita	E. C. Oil Co. (was Mid-Continent Hold. Corp.'s) A. W. Burnside 3-C, 950 ft. from n & 798 ft. from e lines 1se, J. M. Sharp Sur. A-262	6- 7-39	Canyon	2965	8	38
K-M-A	Wichita	Hanlon & Buchanan, Inc.'s C. F. Collins 1-A, 587 ft. from s & 297 ft. from w lines, R. Brown Sur. A-520	10- 1-39	Cisco Series	1718	264	40
Consolidated	Wilbarger	Consolidated Oil Co. et al's G. B. Ancell 1-N, NE NE NE H. & T. C. Sec. 35, Blk. 6	10-10-39	U. Strawn	3772	510	40
Sigler	Wilbarger	Lido Oil Co.'s W. T. Waggoner 21-C, 990 ft. from n & 100 ft. from e lines, H. & T. C. Sec. 52, Blk. 2	9-18-39	Canyon	3660	760	38
Pois-Schulz	Wilbarger	Pois-Schulz et al's J. P. King 2, 320 ft. n of discovery well	10- 7-39	Cisco Series	1684	912	38
Pois-Schulz	Wilbarger	Pois-Schulz et al's A. Streit 1, 200 ft. from s & 700 ft. from w lines H. & T. C. Sec. 19, Blk. 9	12-13-39	Cisco Series	1245	5	36
Bunger	Young	Mid-Continent Pet. Corp.'s R. D. Owens 16-B, 700 ft. from e & 1080 ft. s lines R. D. Owens Sur. A-2245	March	Marble Falls	4005	401	40
James	Young	W. E. Production Co.'s W. J. Dodd 1, C SW SW T. E. & L. Co. Sec. 647	July	Marble Falls	4394	192	40
Eddleman-Sewell	Young	Henry Zweifel et al's R. L. Martin 1, 330 ft. out of NWc J. Gates Sur. A-111	1-11-39	Strawn	2518	¶11.	....

¶ Indicates million cubic feet of gas.

Equipment for

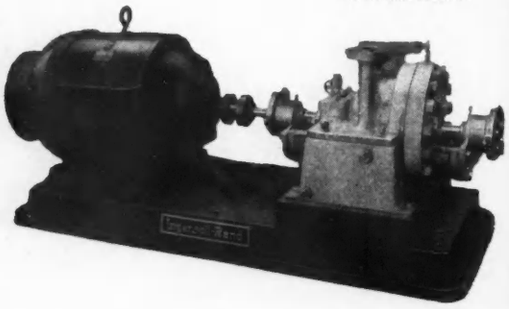


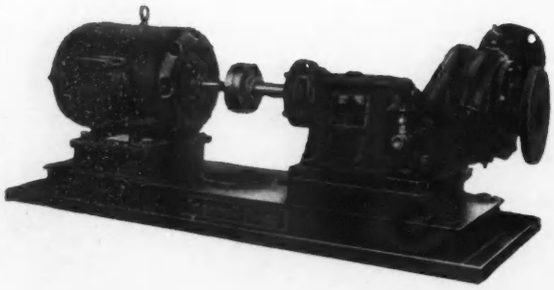
Acid recirculator for alkylation process.



FL refinery-process pump for hot transfer, naptha-column bottoms, residuum, etc.

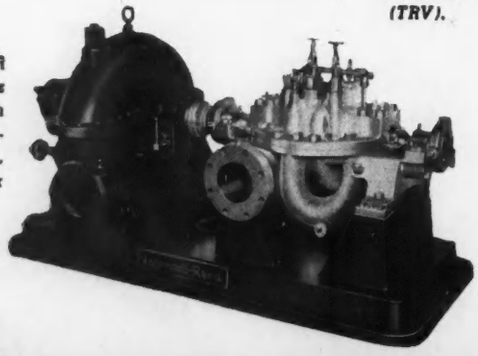
Heavy-duty single-stage pump for conditions of temperature and pressure more severe than normally handled by the FL type.





CRV pump for reflux and transfer service. Also available with built-in motor (Motorpump) or built-in turbine (TRV).

Two-stage GTR pump for hot liquids at relatively high heads — depropanizer-feed service, high-pressure reflux service, etc.



IN THE REFINERY

You will find Ingersoll-Rand on process work where uninterrupted, heavy-duty service of equipment is absolutely vital.

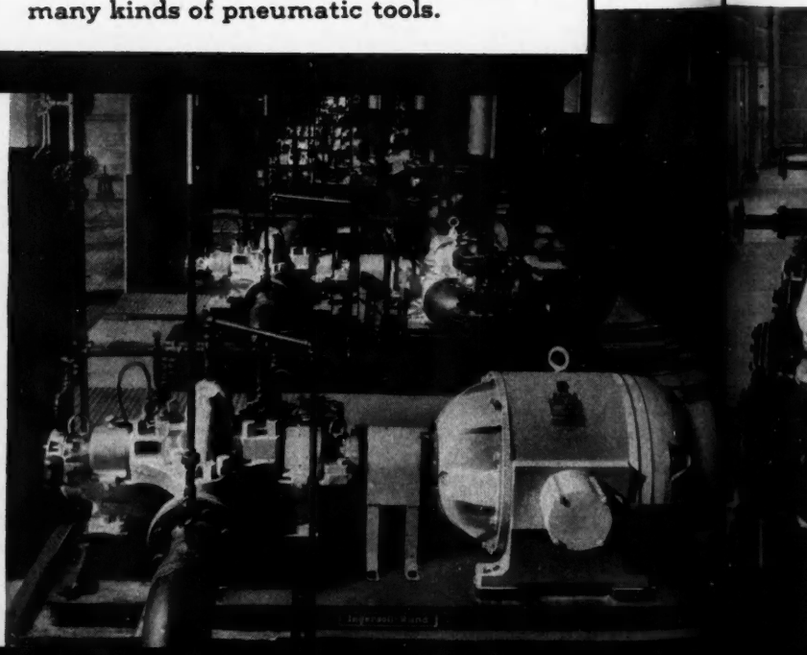
Ingersoll-Rand has kept pace with the continuous and rapid changes in refinery practice. . . . Thermal and catalytic cracking; polymerization; de-waxing; refrigeration, and now, alkylation.

I-R Cameron pumps are available for every refinery service in the manufacture of lubricating oils and gasoline.

Similarly, I-R compressors, blowers, and steam-jet ejectors have met every requirement demanded by the many new and severe refinery services.

In the complete line of compressors are all types for air and gas, with steam, Diesel-engine, gas-engine or electric drive. Sizes range from ¼ to 3000 hp, for pressures up to 15000 lb.

Other I-R products for refineries include hot-oil charging pumps, Diesel and gas engines, impact wrenches and many kinds of pneumatic tools.



the Oil Industry

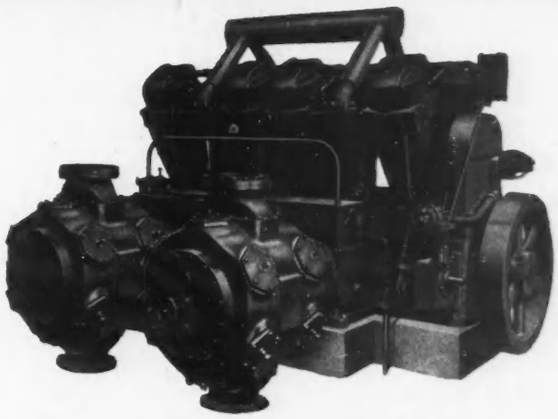
IN THE FIELD

Where 24-hour full-load operation is essential you will find Ingersoll-Rand compressors. For instance, over 150,000 hp of XVG gas-engine driven compressors have been installed. The more recent and larger LVG is enjoying the same popularity in extraction, repressuring and recycling operations. Steam, electric and diesel driven compressors are also available.

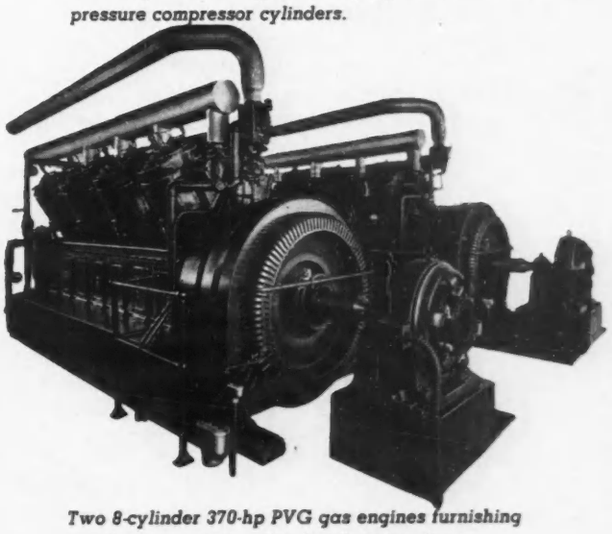
I-R Cameron centrifugal pumps meet practically all pipe-line and field requirements. Pipe-line pumps are frequently driven by gas or oil engines. Here, due to years of experience solving engine and pump problems, Ingersoll-Rand delivers combined engine-pumping units which give the utmost in reliability and efficiency.

The PVG and LVG gas engines are four-cycle, heavy-duty units ranging from 185 to 650 hp. Type SG four-cycle convertible oil-gas engines are available from 190 to 510 hp.

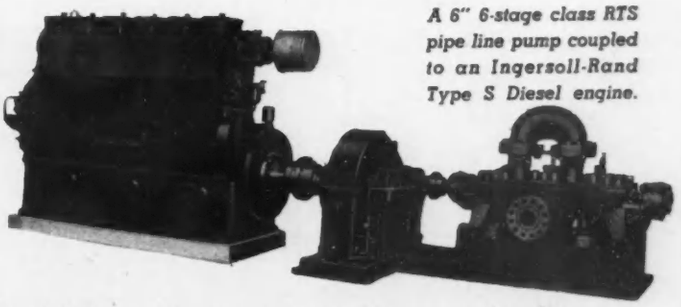
For trench digging, repairs, foundation work, steel erection, etc., I-R Portable Compressors and Pneumatic Tools find many money and time-saving uses.



A 650-hp LVG compressor equipped with low-pressure compressor cylinders.



Two 8-cylinder 370-hp PVG gas engines furnishing auxiliary power in a pipe line booster plant.



A 6" 6-stage class RTS pipe line pump coupled to an Ingersoll-Rand Type S Diesel engine.

LEFT: 300-hp 8-XVG compressors compressing gas in a repressuring plant.

Ingersoll-Rand

11 BROADWAY, NEW YORK, N. Y.

Atlanta	Cincinnati	Hartford	New Orleans	San Francisco
Birmingham	Cleveland	Houston	New York	Scranton
Boston	Dallas	Kansas City	Philadelphia	Seattle
Buffalo	Denver	Knoxville	Picher	St. Louis
Butte	Detroit	Los Angeles	Pittsburgh	Tulsa
Chicago	Duluth	Newark	Pottsville	Washington
	El Paso		Salt Lake City	826-14

Texas Panhandle Opened One New Field During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
.....	Sherman...	L. R. Hagy-Harrington & Marsh's W. Freeman 1, C NW G H & H Ry. Sec. 46, Blk. 2.....	12-23-39	Permian.....	2895	¶14.9	....

¶ Indicates million cubic feet of gas.

rially enhancing the drilling possibilities.

Enlargement of the Hull-Silk field, Archer County's 2-pay Strawn discovery for 1938, into the second largest producing structure in the district will enable it to rival the older K-M-A deep area for drilling honors during 1940. Hull-Silk expanded principally to the northeast and east, with twin tests drilled during the latter part of the year on leases that afford production from the upper and lower Strawn. The northeast trend of development advanced production by stages 3½ miles to link the Sikes-Ford 4400-foot wells, originally classed as a separate pool discovery for 1939. Continuation of the northeast trend and the proving of a large volume of additional acreage to the east of the older portion of the Hull-Silk field is in prospect for the current year.

Search for deep lime production in the Strawn and Caddo series rewarded wildcat efforts in Wilbarger, Archer, Clay, Young, Jack and Montague Counties adequately to justify a continuation of exploratory work. Development of the 1939 deep strikes has not progressed sufficiently to indicate whether any will become major oil fields.

Archer County's deep oil prospects were brightened by the Griffin, Kadane and Mankins strikes, but the latter is the only one in the group that is apt to account for any appreciable volume of drilling this year. The usual quota of shallow oil strikes given the county proved to be small in area.

Montague County advanced to the front as a source of high gravity oil from the deep lime series through the discovery of the Bonita (Benton-Holmes) pool and the Rogers & Rogers area, situated immediately west of Nocona. The latter originated in the 4600-foot Strawn, then added Upper Strawn at 4300 feet and the 5200-foot Bend with natural flowing wells. The newer zones promise to embrace more acreage. The Bonita pool made its entry with a 2900-foot pumper, with later development yielding a well in the 3400-3500-foot Strawn and 3 wells in the 3800-3900-foot Lower Strawn.

Southeastern Wilbarger County gained a new Strawn pool, with oil found in the 3700-foot and 4000-foot Strawn, as result of prospecting along the western production strike from the K-M-A field. Another deep strike for the county was the finding of 3600-foot production in the old Sigler pool.

South Texas Leads Discoveries

Although the discovery rate in the South Texas district showed a decline of approximately 2 percent, it continued to contribute the majority of Texas' strikes and also to lead the nation. There were 35 new fields and 65 new producing horizons found in this Texas area during 1939, compared with 49 fields and 60 pay zones in 1938.

Despite its decline, the type of development during the year made the period compare favorably with South Texas' preceding 12 months.

The rising importance of distillate production in the territory was remarkable, and $8,000,000 are estimated to have been spent on recycling plants. At the close of the year, the region had 5 completed recycling plants, 1 was under construction and 5 others were in the preliminary stage. Several more plants are known to be contemplated during 1940.

The most spectacular development in South Texas was the Sparta-Wilcox play. As the year ended, four areas were hot spots. Due to the showings found, South Texas is considered to have excellent chances of yielding much Wilcox sand production.

Gulf Coast Territory

Although its rate of discoveries was fairly well maintained, the Texas Gulf Coast Sector, extending from Jackson County eastward to

New Fields and New Sands Number Ten Each in Texas Gulf Coast

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Anchor.....	Brazoria....	Glenn H. McCarthy's Carr 1, J. De. J. Valderas Sur.....	9-28-39	Frio.....	10,466	267	49
*Chocolate Bayou..	Brazoria....	Glenn H. McCarthy's Houston Farms Dev. Co. 1, Perry & Austin Sur.....	9- -39	Frio.....	9875	32	51
Rosenberg.....	Ft. Bend...	H. C. Cockburn's Dzierzanowski 1, E. Myers Sur.....	9-22-39	Cockfield.....	7743	81	55
Caplen.....	Galveston..	Sun Oil Co.'s Cade & Co. 2, A. Dickson Sur.....	3-11-39	Miocene.....	7478	307	34
Aldine.....	Harris.....	Texas Gulf Prod. Co.'s Weary 1, E. Farrias Sur.....	5- 6-39	Yegua.....	6834	120	38
S. China.....	Jefferson...	Geo. Echols, Hebert & Smith's Fontenot 1, H. & B. T. No. 17	6-23-39	Frio.....	7885	202	37.5
Martha.....	Liberty....	Stanolind Oil & Gas Co.'s Flowers 1, I. & G. N. No. 7.....	7- 6-39	Frio.....	8108	241	41
Collegeport.....	Matagorda.	Sun Oil Co.'s Savage 1, D. Yeamans Sur.....	7-15-39	Miocene.....	4143	Gas	....
Buttermilk Slough	Matagorda.	Sun Oil Co.'s Cavalin 1, J. Duncan Sur.....	7-20-39	Frio.....	7860	34	45
Hilje.....	Wharton...	Texas Co.'s Peters 1, E. T. R. R. No. 101.....	9-10-39	Oliogocene.....	5230	14	25
		NEW PAY HORIZONS FOUND					
Thompson's.....	Ft. Bend...	H. N. Naylor's Musselman 1, H. Chriesman Sur.....	April	Vicksburg.....	7800	240	35
League City.....	Galveston..	Phillips Pet. Co.'s Dugan 1, Perry & Austin Sur.....	October	Oligocene.....	9929	110	....
Fairbanks.....	Harris.....	Union Prod. Co.'s Whitehead Rash 10, W. S. Powell Sur....	October	Yegua.....	6520	¶55.	....
Aldine.....	Harris.....	Earl Hankamer's Rowland 1, E. Farias Sur.....	July	Cockfield.....	6648	15	56
Fannett.....	Jefferson...	Gulf's Burdages 1, J. Probarth Sur.....	Sept.	Oligocene.....	7480	300	Dis.
Fannett.....	Jefferson...	Gulf's Thomas 20, W. H. Smith Sur.....	May	Frio.....	6648	15	56
Clam Lake.....	Jefferson...	Shell Pet. Corp.'s McFaddin State 1, W. H. P. McFaddin Sur.	February	Miocene.....	2397	150	22
Esperson.....	Liberty....	General Crude's Fee B-3, A. McNeil Sur.....	July	Saline Bayou...	7612	768	39.1
McCorcky.....	Matagorda.	Pierce Estates' Fee 6-A, D. Fenton Sur.....	January	Frio.....	7196	175	37
Ace.....	Polk.....	Peyton Bros.' Kirby West 1-C, G. S. Thomas Sur.....	March	Wilcox.....	7762	412	34.2

* Not officially completed. ¶ Indicates million cubic feet of gas.

Thirty-five New Fields Opened in South Texas During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Red Rock	Bastrop	Hughes & Co.'s Lentz 1, survey 21	5-25-39	Dale Lime	2428	75	37
Heard	Bee	Coronado Corp.'s Heard 1, Michael & Toole survey	12-13-39	Vicksburg	4776	¶.25	....
Powderhorn	Calhoun	Continental's Austin 2, Sec. 2, Blk. J. Cana Gr.	12- 3-39	Catahoula	4635	¶.75	....
Tarancahaus	Duval	Cox & Hamon & Gorman Yoakum's Gorman-Hoffman 1, Sec. 119	12-19-39	Frio	2035	240	21.6
Sejita	Duval	Standard of Texas' Casey 1, Sec. 4	10-25-39	Hockleyensis	5345	40	51.6
Chiltipin	Duval	Nicholls' Graham 1, Survey 572	6-30-39	Pettus	4795	¶10.	....
Muralla	Duval	Blanchard's Parr 1, Survey 298	5-22-39	Pettus	4715	33	42.6
Southland	Duval	Hiawatha's Southland A-1, Flores Gr.	4-13-39	Pettus	5298	145	44.89
Fannin	Goliad	Shell & Matthews' Swickheimer 1, C. L. Co. Sur.	10- 9-39	Catahoula	2855	¶15.5	....
Elm Creek	Guadalupe	J. E. West's Lentz 1, Mitchell Sur. No. 52	12-22-39	Navarro	728	15	36
Texana	Jackson	Moore & Ahern & Cron & Gracey's Drushel 1, Scott Sur.	8-23-39	Frio	5710	32	51
Gutierrez	Jim Hogg	Mayfair Oil Corp.'s Gutierrez 1, Sec. 164	11-22-39	Loma Novia	3226	84	32.3
Ben Bolt	Jim Wells	Bridwell's Smith 1, La Trinidad Gr.	5-24-39	Vicksburg	5251	196	39.7
Blucher	Jim Wells	Shell's Von Blucher 1, Best Sur.	6-17-39	Vicksburg	7559	36	53
Camada	Jim Wells	Parr & Delaney's Hoffman 1, Sec. 8	5-28-39	Hockley	5637	33	46.4
La Gloria	Jim Wells	Magnolia's Maun 1, La Blanca Gr.	3-23-39	Frio	6598	165	60
Magnolia City	Jim Wells	Gillespie & Sons' Shear 1, A. B. & M. Sur.	4-30-39	Frio	5448	108	43.8
Reynolds	Jim Wells	Texas Gulf's Miller 1, Agua Dulce Gr.	6-24-39	Vicksburg	5155	44	37.4
Wade City	Jim Wells	Hunter & Quinn's Pundt 1, Poitevent Sur.	7-12-39	Frio	4820	30	47.7
Green	Karnes	Clyde Echols' Newberry 1, Martinez Gr.	12-21-39	Pettus	2949	¶3.	....
Mountain View	Live Oak	Sal Vieja & Mountain States' Riser 1, Sec. 382	9-30-39	Hockleyensis	2481½	¶3.	....
White Creek	Live Oak	Brauer, Holland & Smith's Bonham 1, B. S. & F. Sur.	2-17-39	Hockley	1397	75	22.
Minnie Bock	Nueces	Texas Conservative's Bock 1, Herrera Gr.	5-31-39	Catahoula	3835	145	2.7
North Luby	Nueces	Seaboard, La Prelle 1, Block 9, Roberts & White Sur.	5-19-39	Miocene	4361	173	51
Robstown	Nueces	Shield Oil Co.'s Texas Rural Community 1, Herrera Gr.	9- 6-39	Frio	5566	92	42.5
Mellon Creek	Refugio	Copano's O'Connor C-1, Hoyt Sur.	2-13-39	Frio	5878	379	37.5
East Mathis	San Patricio	Seaboard's Pearson 1, Block 29, Paul's Subd.	6-16-39	Frio	5270	54	35.5
Odem	San Patricio	Seaboard's M. C. Smith 1, Hart & Son Sur.	10-27-39	Frio	7000	¶6.	57
El Dorado	Schleicher	Oppenheimer's Jackson 1, Tex-Central R.R. Co. Sur.	8-27-39	Cisco Lime	4081	105	34
Seabury	Starr	Clopton & Mitchell's Seabury 1, Por. 80	12- 8-39	Frio	1333	25	22.6
S. La Reforma	Starr	Magnolia's Guerra-Fee 2-F, Farrias Gr.	8-21-39	Frio	5832	80	51.6
Cologne	Victoria	Houston Oil Company of Texas' Hornstein 1, Pedro Gallando Gr.	10-13-39	Catahoula	2870	¶4.	....
Victoria	Victoria	Mayo & Trinity's Vogt 1, Victoria Gr.	9- 3-39	Catahoula	2555	4	22.6
Adami	Webb	Johnson's Adami 1, A. B. & M. Sur.	5-15-39	Mirando	999	35	20.5
Volpe	Webb	Magnolia's Volpe-Benavides 5-B, B. S. & F. Sur.	6-20-39	Mirando	2466	90	22.5

NEW PAY HORIZONS FOUND

McCampbell	Aransas	Culton's Barry 2, Orrick Sur.	7-17-39	Frio	7360	46	55
West Tuleta	Bee	Anderson & Pritchard et al's Robinson 1, Uranga Gr.	12-27-39	Yegua	4472	18	49
Kelsey	Brooks	Humble's McGill Bros. 5, Rivas Gr.	4- 4-39	Jackson	6107	65	42
Longhorn	Duval	Longhorn's Miller 2-A, Poquita Gr.	2-15-39	Jackson	4038	105	44
S. R. C.	Duval	Transwestern's Duval Ranch 21, Sec. 297	6- 8-39	Cole	1059	65	20
Seven Sisters	Duval	Wellington's Welder 2-G, Sur. 102	10-25-39	Yegua	3063	¶10.	....
Seven Sisters	Duval	Harvey & Henderson's Drummond 2, Sec. 308	10-23-39	Frio	1259	¶2.25	....
Southland	Duval	Hiawatha's Southland 3-A, Santos Flores Gr.	11- 3-39	Cockfield	5365	92	46
Weser	Goliad	Mar-Tex's Albrecht A-1, Hancock Sur.	3-21-39	Cook Mt.	5239	28	42
La Blanca	Hidalgo	Pantana's Harding 1, Mestina Gr.	8- 4-39	Frio	8074	80	55
La Blanca	Hidalgo	Pantana's McDougall 1, La Blanca Gr.	2-21-39	Frio	7480	100	48
McAllen	Hidalgo	Harding's Card 1, Hidalgo Gr.	1-16-39	Frio	7498	100	55
Samfordyce	Hidalgo	Fohs' Sullivan 1, Porcion 39	3-20-39	Frio	3436	76	24
Samfordyce	Hidalgo	Messenger's Chapa 1	5- 4-39	Frio	3983	¶3.	....
West-Vanderbilt	Jackson	Glasscock's Drummond 1, Musquiz Gr.	6-21-39	Frio	5543	187	32
West-Vanderbilt	Jackson	Glasscock's Drummond 10, Musquiz Gr.	12-13-39	Frio	5779	701	31
Cordelle	Jackson	Porter's Drushell 2-B, I. & G. N. Sur.	7-17-39	Catahoula	2749	74	24
Francitas	Jackson	Crosby's Kopnickey 1, Green Sur.	5-25-39	Frio	7967	156	42
Francitas	Jackson	Mills Bennett's Lawrence 1, John Newall Sur.	7-17-39	Frio	8640	19	52
Alfred	Jackson	Howeth & Lewis' Adams 1, Sec. 122	4-23-39	Vicksburg	4674	272	45
Ben Bolt	Jim Wells	Mosser's Perales 1, Los Altos Gr.	8-18-39	Vicksburg	5390	¶20.	....
Clark (1)	Jim Wells	Gravis & Doran's Clark 1, Los Presnos Gr.	3-23-39	Frio	4814	16	60
Clark (1)	Jim Wells	Gravis & Doran's Mule 1, Poitevent Sur.	5- 3-39	Vicksburg	5330	161	42
East Premont	Jim Wells	Transwestern's Dunlap 1, Sur. 181	2- 8-39	Frio	5480	65	54
Reynolds	Jim Wells	Graham & Mosser's Mosser 4-A, Frank Sur.	8-24-39	Frio	4821	71	31
Reynolds	Jim Wells	Morgan's Fee 2-4, Agua Dulce Gr.	8-21-39	Frio	5116	130	41
La Gloria	Jim Wells	Magnolia's Staltze 1, La Gloria Sub.	11-30-39	Frio	7010	197	57
La Gloria	Jim Wells	Magnolia's Maun 1, La Gloria Sub.	9-27-39	Frio	7232	171	27
Magnolia City	Jim Wells	Myer & Simons' Reynolds et al 1, Sur. 209	12-16-39	Frio	5709	259	45
Wade City	Jim Wells	Rowe & De Lange's McNeill 1, Agua Dulce Gr.	11- 2-39	Vicksburg	1455	10	54
Oakville	Live Oak	Simmons' McGriff 10-B, O'Docharty Sur.	9-23-39	Frio	1814	¶5.	....
Oakville	Live Oak	Simmons' McGriff 9-B, Romero Sur.	7-31-39	Jackson	1836	124	20
White Creek	Live Oak	Coquat et al's Borham 1, Sec. 59	5-28-39	Jackson	1410	150	21
Clara Driscoll	Nueces	Wellington's Driscoll 1-B, J. Low Sur.	12-19-39	Frio	5302	113	25
S. Clara Driscoll	Nueces	Wellington's Martin 1, Sur. 129	12-13-39	Frio	5263	320	36
S. Clara Driscoll	Nueces	Wellington's Richardson 1, Sec. 111	4- 5-39	Frio	6566	151	37
N. Agua Dulce	Nueces	Union's Harper 1, Joen Sur.	5- 6-39	Frio	5593	106	37
N. Agua Dulce	Nueces	Union's Eliff 2, Agua Dulce Gr.	12- 3-39	Frio	5090	¶34.	....
Richard King (2)	Nueces	Southern Minerals' King 1-A, Sec. 30	5- 4-39	Frio	5414½	572	39
Richard King (2)	Nueces	Southern Minerals' King 16, Sec. 32	4- 9-39	Vicksburg	6143	38	38
N. Luby	Refugio	Seaboard's La Prelle 4-A, Robert & White Sub.	11-12-39	Heterostegina	5085	155	49
La Rosa	Refugio	Morgan-Gulf's Rook A-1, Aldrete Gr.	4-23-39	Frio	5714	113	31
La Rosa	Refugio	Morgan-Gulf's Rook A-2, Aldrete Gr.	6- 3-39	Frio	5415	126	36
La Rosa	Refugio	Rutherford's Shiermer B-1, Aldrete Gr.	2-22-39	Frio	6614	154	36
Woodsboro	Refugio	Rutherford's Oppenheimer 1, Uina Gr.	4-29-39	Heterostegina	4200	¶.5	....
Tomoconnor	Refugio	Quintana's Tomoconnor 10-A, C. E. I. P. M. Sur.	5-27-39	Frio	5183	¶2.5	....
E. White Point	San Patricio	Houston's Baldwin 5-A, Fulton Sur.	5-20-39	Catahoula	2505	¶5.	....
E. White Point	San Patricio	Plymouth's Brooks 3, Sec. 61	5-13-39	Catahoula	4015	¶5.	....
White Point	San Patricio	Easterwood et al's Dunn 1, Flores Sur.	2- 4-39	Frio	5676	154	29
E. Mathis	San Patricio	Seaboard's Blumberg 1, Sec. 13	7-17-39	Frio	4422	¶4.5	54
Angelita	San Patricio	Wellington's Welder 6, Villareal Gr.	10-15-39	Frio	6235	32	36
Cooper Page	Schleicher	Lone Star's Page 1, G. H. & S. A. Sur.	6-19-39	Bend Lime	5745	259	37
Sun	Starr	Sun's McKinney 3, Smith Sur.	1-11-39	Frio	4673	119	46
Sun	Starr	Sun's McKinney 4, Smith Sur.	2-21-39	Frio	4623	¶5.	....
Sun	Starr	Sun's Spear 1, CCSD & RGNG Sur.	4-12-39	Frio	4972	208	46
Sun	Starr	Sun's Olivarez 2, CCSD & RGNG Sur.	3-22-39	Frio	4142	40	52
N. Ricaby	Starr	Howard Bass' Lester 1, Porcion 82	8-23-39	Frio	1437	100	21
Rincon	Starr	Davis & Co.'s Slick 2-B, Sec. 528	10-22-39	Frio	4179	140	43
Rincon	Starr	Transwestern's Cameron 1, Sur. 228	5-23-39	Frio	4173	132	41
Keeran	Victoria	Gulf's Keeran 14, Leon Gr.	1-21-39	Frio	6081	207	42
Keeran	Victoria	Union's Keeran 9, Leon Gr.	3- 9-39	Heterostegina	4807	¶5.	....
Cologne	Victoria	Houston Oil Co.'s Dietzel 1	11-15-39	Frio	4832½	135	46
Cologne	Victoria	Houston Oil Co.'s Dietzel 1	12-18-39	Frio	4699	60	47
Mirando Valley	Zapata	Interstate Minerals' Lopez 1, Sur. 113	4-15-39	Lower Mirando	1798	35	20
Nueces	Richard King	Southern Minerals' King 2-B, Sec. 30	7-17-39	Frio	5258	157	37

¶ Indicates million cubic feet of gas.

WHY PIPE LINE

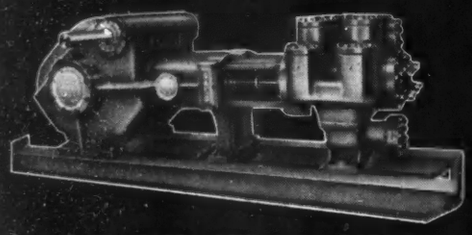


Fig. 2652. 12" stroke—176 bbls. at 1500 lbs. to 592 bbls. at 500 lbs.

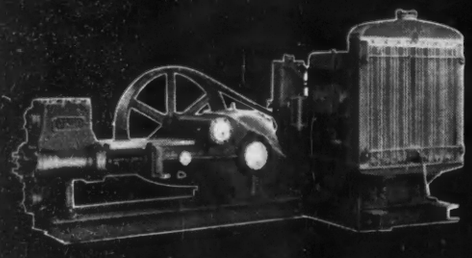


Fig. 1741, with Diesel Drive—250 bbls. at 600 lbs. to 502 bbls. at 300 lbs.

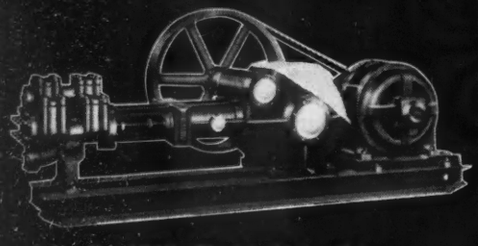


Fig. 1742. Electric Motor Drive. 54 bbls. at 1400 lbs. to 250 bbls. at 600 lbs.

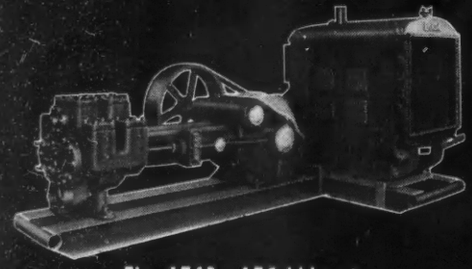
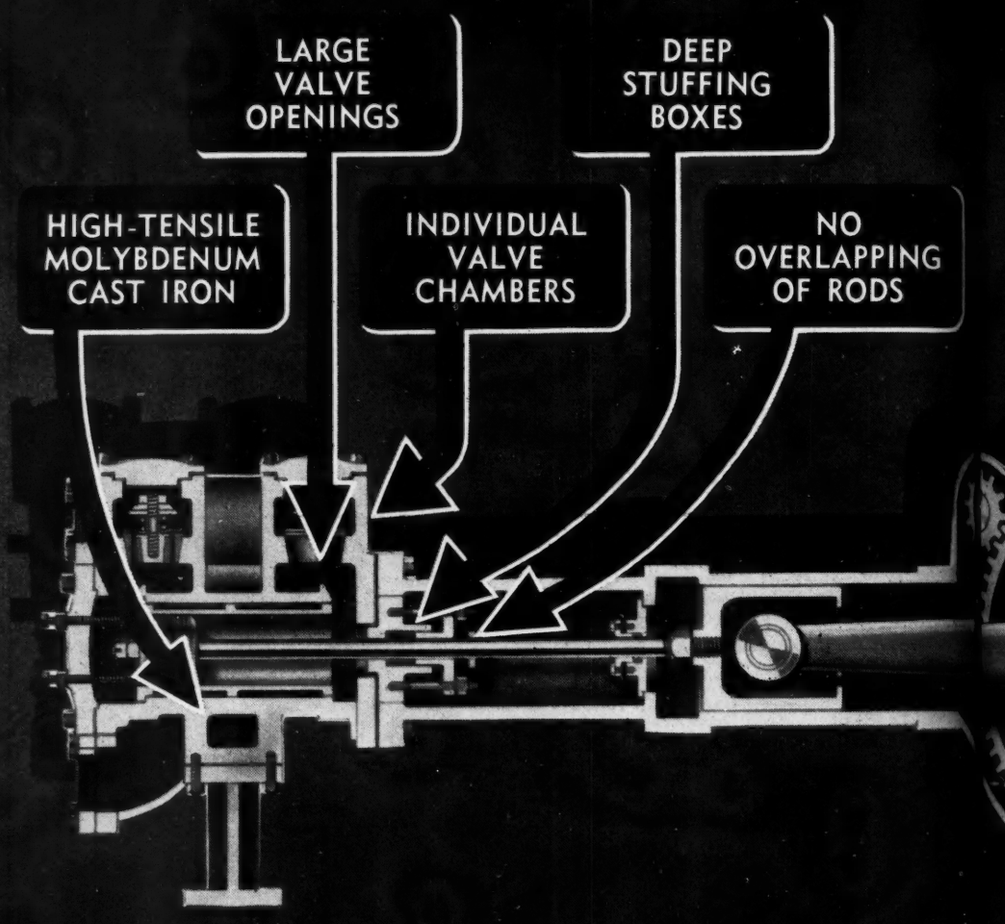


Fig. 1743. 156 bbls. at 925 lbs. to 578 bbls. at 260 lbs.

Fig. 201. GASO Rodline Pump. 30.96 bbls. at 18 strokes, to 41.28 bbls. at 24 strokes.



THE dominating position of GASO Pumps in the field of oil pipe line pumps is not due to luck or to aggressive salesmanship. It is due to merit of product, achieved through a quarter century of strict specialization. GASO Pumps are built exclusively for oil pipe line use, and are designed by engineers of long experience to deliver exceptional performance in this service. Some of the features which have made them the choice of pipe line engineers, are here listed:

High-Tensile-Strength Molybdenum Cast Iron is used for fluid-end casting.

Extra-Large Valve Openings and Fluid Passages permit proper filling at highest speeds.

Individual Valve Chambers.

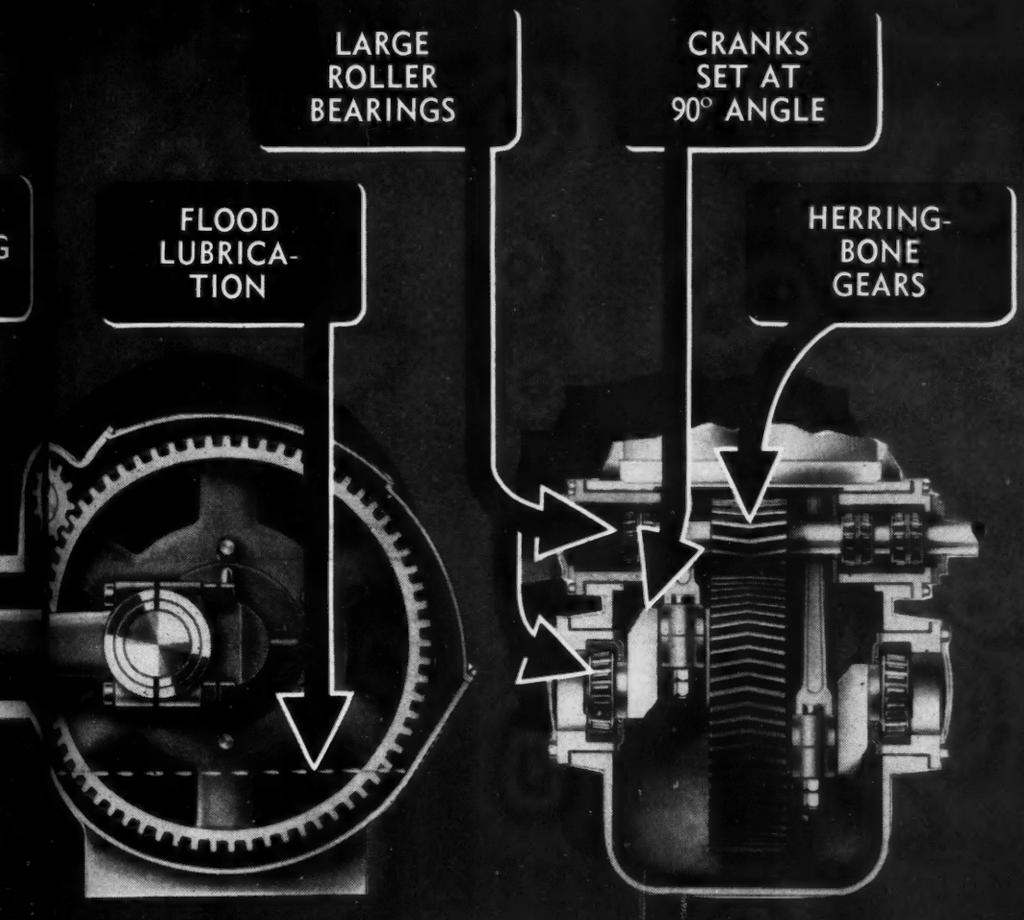
Extra-Deep Stuffing Boxes give tightness without undue tension.

Long Frames Prevent Overlapping of Piston Rods. Pumped fluids will not reach crankcase.

Herringbone Gears are Center-Mounted on Shafts to equalize loads on bearings.

GASO

E MEN PICK GASO



Extra-Large Roller Bearings mount crank, pinion and worm shafts, each operating in separate removable housing sealed off from crankcase oil.

Cranks Set at 90-Degree Angle give overlapping piston stroke assuring smooth flow.

Flood-Lubricated gears, crosshead and connecting-rod bearings, by oil bath in enclosed crankcase.

Uniform Wear on Ring Gears, assured by worms of hardened alloy steel, ring gears of bronze.

Versatility. Interchangeable liners: pistons, rings and piston rods of any materials specified: valves of any type desired.

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PUMPS

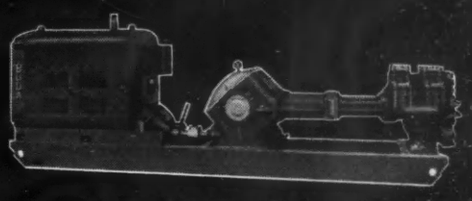

Fig. 2050-S. Portable Unit. 59 bbls. at 1000 lbs. to 255 bbls. at 250 lbs.

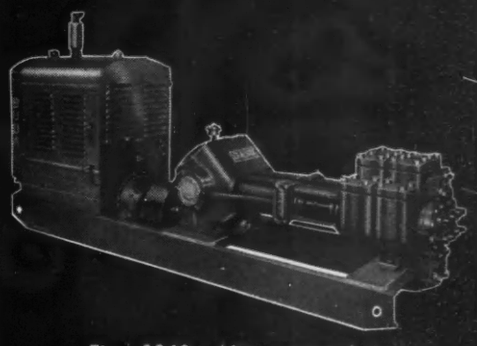

Fig. 2249. Also mounted on trailer. 46 bbls. at 750 lbs. to 126 bbls. at 300 lbs.

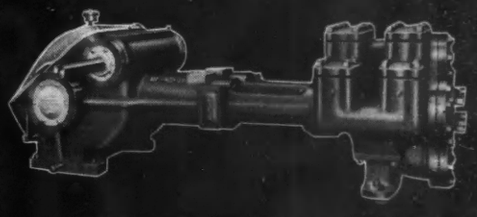

Fig. 1550. 59 bbls. at 1000 lbs. to 255 bbls. at 300 lbs.

Fig. 1849. 46 bbls. at 900 lbs. to 126 bbls. at 350 lbs.

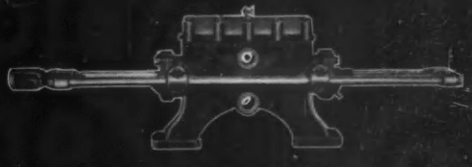

Fig. 301. Piston Power Pump. 24 to 30-inch stroke. 31.73 to 157.36 bbls. per hour.

the Louisiana state line, did not have as impressive strikes as previously experienced. There were 10 new fields discovered and a similar number of new producing zones in already productive areas.

None of the new found oil-bearing structures had proved themselves first class Coastal-type fields at the close of the year. The discovery of Wilcox sand production at Ace in Polk County, and Vicksburg production on the flank of the Thompson field, Fort Bend County, probably were the most outstanding new sands found in the past 12 months.

Drilling in the region was off about 15 percent during 1939, and is expected to drop slightly during 1940. The decrease is due to the lack of important discoveries and, therefore, any concentrated drilling spots.

However, an entirely different story was written in the Louisiana Gulf Coast region. Drilling increased sharply, and several important strikes were made. A total of 14 new fields and 58 new producing horizons were opened.

Probably the most important discovery was the finding of Wilcox sand production at Eola, Avoyelles Parish, and at Ville Platte, Evangeline Parish.

Little is as yet known about the Paradis field in St. Charles Parish due to lack of development. However, it is highly regarded. Early tests in the field have shown 175 feet of oil sand covering an area

Louisiana Gulf Coast Adds Fourteen New Fields During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
N. Elton	Allen	Bel Oil Corporation's Bel Estate 1, 22-6s-3w	6-14-39	Oligocene	7292	20	55
Eola	Avoyelles	Sid Richardson's Haas Investment Co. 1, 7-2s-3e	1-18-39	Wilcox	8581	160	44.5
Perkins	Calcasieu	Humble O. & R. Co.'s Edgewood Land 1, 32-7s-10w	8- 2-39	Oligocene	7042	Gas	....
Grandlake	Cameron	Superior's State 1, in Lake, 13s-4w	5- 6-39	Miocene	8392	384	32.8
Vermilion Bay	Iberia	Texas Co.'s State B-3, 16s-5e	7-23-39	Miocene	10,241	300	31.9
Barataria	Jefferson	California Co.'s Adams-Rutley 1, 2-16s-23e	11- 2-39	Miocene	8214	888	37.3
Lafourche Crossing	Lafourche	Mikton Oil Co.'s Martinez 2, 132-15s-17e	9-15-39	Miocene	10,132	312	39.9
*Potash	Plaquemines	Humble Oil & R. Co.'s Orleans Levee Board 37, 13-18s-15e	1-24-39	Miocene	8070	552	28.2
Kennilworth	St. Bernard	Vendome Pet. Co.'s Kennilworth 1, 59-13s-14e	5- 5-39	Miocene	10,610	34	35.6
Paradis	St. Charles	Texas Co.'s LLE Paradis 1, 39-14s-20e	6-26-39	Miocene	9915	120	53.7
La Pice	St. James	Shell's Schexneyder 1, 38-12s-15e	6- 2-39	Oligocene	10,915	48	45.6
La Place	St. John the Baptist	Pan American's Mill 1, 12-11s-7e	11-25-39	Oligocene	8122	131	60
Happytown	St. Martin	Shell's Iberville Land Co. 1, 86-7s-8e	11-21-39	Oligocene	8758	374	39.3
Henderson	St. Martin	Texas Co.'s St. Martin Land Co. 12, 21-8s-7e	9- 9-39	Oligocene	8590	250	37.3
NEW PAY HORIZONS FOUND							
Jennings	Acadia	Superior's Leckelt 16, 42-9s-2w	Feb.	Oligocene	8229	311	35.6
North Crowley	Acadia	Humble's Thevis 2, 34-8s-1e	Dec.	Oligocene	8782	803	....
N. Tepetate	Acadia	Atlantic's Doga 1, 11-7s-2w	April	Oligocene	8981	Gas & Dis.	50.8
North Elton	Allen	Stanolind's Jenkins 1, 23-6s-3w	Dec.	Oligocene	7435	....	....
Darrow	Ascension	Humble O. & R. Co.'s Humble 16, 36-10s-2e	Oct.	Oligocene	8261	682	29.5
Sweet Lake	Cameron	Pure Oil Co.'s Yount-Lee 14, (WO), 12-13s-8w	Jan.	Oligocene	7137	184	35.6
West Hackberry	Cameron	Superior's Benson Vincent 5, 30-12s-10w	Feb.	Oligocene	7800	275	40.2
Grand Lake	Cameron	Superior's State Grand Lake 5, 11-13s-4w	Dec.	Miocene	6717	194	33.7
*Chalkley	Cameron	Humble's Cameron Parish School Land 1, 16-12s-6w	Feb.	Oligocene	8959	504	38
Creole	Cameron	Superior's State 5, 15s-8w	March	Miocene	6854	50	49.5
Chalkley	Cameron	Humble's School Land 2, 16-12s-6w	April	Oligocene	8668	432	36.2
Creole	Cameron	Superior's State 6, 15s-8w	June	Miocene	6775	281	33.4
Chalkley	Cameron	Shell's Hanszen 2, 21-12s-6w	Oct.	Oligocene	8876	591	35.6
Baton Rouge	East Baton Rouge	William Helis' Nelson 4, 36-7s-1w	April	Miocene	7180	Gas	....
Baton Rouge	East Baton Rouge	W. V. Bowles' Richard Community 1, 46-7s-1e	July	Miocene	4352	Gas	Gas
*ille Platte	Evangeline	Continental's H. Hass 1, 44-3s-2e	June	Wilcox	10,085	312	53.2
Ville Platte	Evangeline	Continental's Coriel 2, 36-3s-2e	Nov.	Wilcox	10,230-245	202	39
Ville Platte	Evangeline	J. K. Hughes' Ortego 1, 36-3s-2e	Nov.	Wilcox	10,118-157	226	41.2
Fausse Point	Iberia	Texas Co.'s State 6, 35-11s-8e	Dec.	Miocene	4993	102	36.9
New Iberia	Iberia	The Texas Co.'s A. Renaudet 1, 71-12s-7e	April	Oligocene	8970	150	32.6
South Roanoke	Jeff Davis	Union Sulphur Co.'a T. R. S. Farms 2, 23-10s-4w	Jan.	Oligocene	10,120	160	52.4
Woodlawn	Jeff Davis	Union Sulphur Co.'s Miller 2, 7-9s-5w	June	Oligocene	9393	85	Dis.
Roanoke	Jeff Davis	Humble's Taylor 4-(WO), 12-9s-4w	June	Oligocene	6268	376	34.4
Woodlawn	Jeff Davis	Union Sulphur Co.'s Calcasieu Nat'l Banks 5, 12-9s-6w	Aug.	Oligocene	9683	152	35.1
Timbalier Bay	Lafourche	Gulf's State PP3, 36-23s-21e	Jan.	Miocene	6792	184	32
Lake Long	Lafourche	Fohs Oil Co.'s State 7, 64-17s-19e	Jan.	Miocene	9819	83	49.1
Lake Long	Lafourche	Fohs Oil Co.'s State 8, 17s-19e	June	Miocene	9161	118	51.2
Leeville	Lafourche	Texas Co.'s LLE Leeville 72, 27-21s-22e	Nov.	Miocene	6827	Gas & Dis.	....
Golden Meadows	Lafourche	Mar-Tex Oil Co.'s Falgout Holding Co., 9-19s-22e	May	Miocene	7955	250	39.5
Golden Meadows	Lafourche	St. Mary Oil Co.'s Choucet Unit 1, 12-19s-23e	Aug.	Miocene	5452	326	38.2
Golden Meadows	Lafourche	F. W. Bennett's Collins 1, 12-19s-22e	July	Miocene	5173	21	36.1
Golden Meadows	Lafourche	Texas Co.'s State Catfish Lake 2, 3-20s-21e	Aug.	Miocene	2772	187	26.3
Golden Meadows	Lafourche	Texas Co.'s LaTerre 2, 6-20s-22e	Sept.	Miocene	10,040	355	43.2
Golden Meadows	Lafourche	St. Mary Oil Co.'s Ledet 1, 9-19s-22e	Aug.	Miocene	2659	173	26.3
Golden Meadows	Lafourche	Texas Co.'s Theriot 1, 12-19s-22e	Oct.	Miocene	6602	260	35.6
Grand Bay	Plaquemines	Gulf's State QQ1, 6-20s-19e	Jan.	Miocene	7147	700	30.1
Grand Bay	Plaquemines	Gulf's Grand Prairie Levee District 4-A, 48-20s-18e	June	Miocene	9700	770	36
Grand Bay	Plaquemines	Gulf's State 2QQ, 5-20s-18e	July	Miocene	8750	485	36.1
Lake Hermitage	Plaquemines	Gulf's Lafourche-Basin Levee District 9, 2-18s-25e	Feb.	Miocene	3166	84	....
Quarantine Bay	Plaquemines	Gulf's State QQ10, 17-19s-17e	June	Miocene	8557	238	35.1
Quarantine Bay	Plaquemines	Gulf's State QQ15, 7-19s-17e	Nov.	Miocene	7721	648	34.4
Venice	Plaquemines	Tide Water's Manhattan Fruit Co. 10	Aug.	Miocene	7505	264	32.5
Venice	Plaquemines	Tide Water's Buras Levee Board 5, 23-21s-30e	Aug.	Miocene	7900	195	42.3
Venice	Plaquemines	Tide Water's Buras Levee Board 6, 23-21s-30e	Nov.	Miocene	10,610	288	38.7
Paradis	St. Charles	Texas Co.'s LLE Paradis 2	Dec.	Oligocene	10,340	1710	38.6
Convent	St. James	Continental's Realty Operators 2, 17-12s-17e	July	Miocene	8035	154	41
Lake Mongoulois	St. Martin	Texas Co.'s State 7, 10-10s-9e	Nov.	Oligocene	9970	100	Dis.
Bateman Lake	St. Mary	Texas Co.'s Wux Bayou 1, 21-16s-12e	Jan.	Miocene	8650	51	Dis.
Charenton	St. Mary	J. P. Scranton et al's State Bayou Cruel, 30-13s-10e	March	Miocene	7896	700	34.3
Charenton	St. Mary	Pan American's Lawes 13, 30-13s-10e	June	Miocene	5834	158	35.9
Horseshoe Bayou	St. Mary	Texas Co.'s State 2, 37-17s-9e	March	Miocene	11,847	25	48.5
Gibson	Terrebonne	Shell's Kuntz 3, 40-17s-15e	June	Miocene	8642	69	45.6
Dog Lake	Terrebonne	Texas Co.'s LLE Dog Lake 9, 5-22s-16e	June	Miocene	7335	246	32.2
Bay St. Elaine	Terrebonne	Texas Co.'s State B-3, 13-22s-17e	July	Miocene	6325	119	24.7
Abbeville	Vermilion	Continental's Duhon 1, 17-12s-3e	Aug.	Miocene	10,526	139	55
West Gueydon	Vermilion	Magnolia's Ferguson 2, 5-12s-2w	July	Miocene	6695	628	38.6
West Gueydon	Vermilion	Magnolia's Ferguson 3, 5-12s-2w	Sept.	Miocene	6982	779	43.2
Choctaw	West Baton Rouge	Standard Oil of Louisiana's Morlly Cypress 1, 29-8s-11e, (WO)	July	Oligocene	8552	648	36.7

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Three New Fields Found in Arkansas During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Big Creek	Columbia	Standard of Louisiana's Petty Stave Co. 1, SE SE 4-17-21	Dec.	Smackover Lime.	7999	168	Distillate
Dorcheat	Columbia	Atlantic Refg. Co.'s Pinewoods Lumber 1, NE NE 16-18-22	Sept. 2	Smackover Lime.	9002	528	43.5
Lewisville-Stamps	La Fayette	East Texas Refg. Co.'s Patten A-1, Sec. 24-16-24	April 25	Lower Glen Rose and Tokio	3606	60	37

North Louisiana's 1939 Discoveries Consist of One New Pay Sand

Field	Parish	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Lisbon	Claiborne	Lisbon Exploration Co.'s Vaughan 1, NW NE 36-21n-sw	Dec.	Lower Marine	8901	68	Dist.

already 1½ miles long. The field ultimately may prove to be among the largest yet found in the Louisiana Gulf Coast.

North Louisiana had a dismal year. No new fields were found, and no extensions of consequence. The only discovery was the finding of production in the Lower Marine at Lisbon very late in the year.

Adjoining southwestern Arkansas did better, finding four new fields. However, none of the fields had attained major ranking at the close of 1939.

Kansas Shows Decline

New discoveries in Kansas continued to rank high, but also registered another decline. There were 33 new structures proven productive, compared with 43 in 1938, 52 in 1937 and 71 in 1936. No doubt the increasing production in Illinois and the inability to obtain crude outlets in the western sector had much to do with this condition.

The Arbuckle lime formation contributed 16, or approximately half, of the state's strikes. Lansing-Kansas City lime was second with 7 new openers.

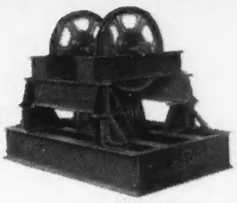
A third of the discoveries were located in Barton County, which had 12. Rice County accounted for 5 and Russell for 4.

Oklahoma's 22 new fields represented a slight gain, but all were

Kansas Adds Thirty-Three New Fields During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Clawson	Barton	Virginia Drilling Co.'s Clawson 1, SWc NW 17-20-11w	1- 1-39	Arbuckle	3300	679	41
Proffitt	Rice	Tatlock's Proffitt 1, SW SE SW 12-20-10w	2- 1-39	Arbuckle	3335	298	40
Kruckenberg	Barton	Amerada Petroleum Corp.'s Kruckenberg 1, C NE NE 14-19-15w	2-15-39	Arbuckle	3632	132	32.7
Ferrell	Butler	Table-Mesa Oil Co. et al's Ferrell Ranch 1, SW NW NE 28-28-8e	3-29-39	Mississippi	2689½	35	42
Miltz	Marion	Johnson et al's Miltz 1, SWc 24-17-4e	4- 5-39	Mississippi	2485	57	36
Marchand	Barton	York State Oil Co.'s Marchand 1, CEL NE NE 24-20-12w	4-12-39	Arbuckle	3316	559	40.2
Gardner	Johnson	Sagamore O. & G. Co.'s Metropolitan Life 1, SW SE SE 20-14-22e	4-26-39	Bartlesville	902	25	23
Midway	Rice	Phillips Petroleum Co.'s Proffitt 1, C E½ NE NE 8-20-9w	5-24-39	Arbuckle	3263	212	43
Sw. Letsch	Russell	Skelly Oil Co.'s Carter 1, C S½ SW NE 33-14-13w	4-12-39	Lansing	2869½	524	37
Mudd	Russell	Balloum's Mudd 1, NEc 6-14-15w	5-26-39	Lansing-KC	3180	570	39.6
	Norton	Power Oil Co. et al's Van Patten 1, C NE 26-4-21w	5-31-39	Lansing	3665	200	18.3
Marchand W.	Barton	Crown Petroleum Co. et al's Koch 1, NEc 23-20-12w	5-31-39	Arbuckle	3358	273	40
	Sherman	Goodland Independent Gas Co.'s Keeran 1, NEc 30-8-39w	6- 7-39	Cretaceous	1307	¶ .08	....
Bow Creek	Phillips	Blue Stem Oil Co.'s Donaldson 1, SE NE NE 25-5-18w	6-21-39	Lansing-K. C.	3164	827	40
Atherton N.	Russell	Cities Service Oil Co.'s Dutt 1, NWc SE 18-13-14w	6-28-39	Arbuckle	3134	241	24
Max	Stafford	Trigg's Tiechmann 1, NW NE SE 35-21-12w	6-29-39	Lansing-K. C.	3380	881	27.7
Darien	Cowley	Brewer, Hartman et al's Brown 1A, SEc NW 33-30-4e	7-12-39	Arbuckle	3286	612	39.6
	Barton	B. B. & M. Drilling Co et al's Esfeld 1, NWc SE 28-16-11w	7-19-39	Arbuckle	3345	2750	41
W. Prusa	Barton	Vernon O. & G. Co. et al's Hoffman 1, NWc SW 18-16-11w	7-26-39	Lansing-K. C.	3217	527	41
	Johnson	Hammel et al's Bross 1, NW SW SE 4-12-24e	8- 9-39	Sand	520	¶ .5	....
Pospishel	Barton	Iron Drilling Co. et al's Pospishel 1, NEc SE 20-17-15w	8- 9-39	Arbuckle	3574	231	38
	Labette	Morgan et al's Ball 1, NEc SE 35-34-18e	8-18-39	Arbuckle	1155	112	29
Grapp West	Russell	Phillips Petroleum Co.'s Krug 1, NWc SE 15-15-14w	9-27-39	Arbuckle	3216	312	35.8
	Franklin	Snyder et al's Feeler 1, SW NW NW 27-15-20e	10- 4-39	Squirrel Sand	830	¶ .15	....
Orth East	Rice	Murfin et al's Behnke 1, C W½ SW NW 25-18-10w	11- 8-39	Quartzite	3209	805	42.8
	Barton	Crown Petroleum Co.'s Schartz 1, SEc NW 12-20-12w	11- 8-39	Arbuckle	3363	126	37.5
	Barton	Myers' Linville 1, SWc SE 4-20-10w	11- 8-39	Arbuckle	3396	15	41
Harzman	Barton	Aylward Producing Co. et al's Harzman 1, C W½ NW SW 33-16-11w	11-15-39	Lansing-K. C.	3356	43	37
Coal Creek	Barton	Day et al's Feltes 1, SEc NE 14-16-12w	11-22-39	Arbuckle	3348½	375	41.8
Krier	Barton	B. B. & M. Drilling Co.'s Krier 1, C E½ SE SE 30-16-11w	11-28-39	Gorham	3327	446	42.5
Rahn	Cowley	Garden et al's Rahn 1, SWc NW 13-34-5e	12-22-39	Bartlesville	2950	2400	38.3
West Bredfeldt	Rice	Saco Oil Co.'s Habiger 1, SEc SW 12-18-10w	12-25-39	Arbuckle	3268	374	....
NEW PAY HORIZONS FOUND							
Ainsworth	Barton	Skelly Oil Co.'s Gage 1, SEc SW 35-16-13w	2-21-39	Topeka	3260	451	35.7
Hall	Russell	Shields' Gross 1-A, CSL SW SE 5-15-13w	3- 1-39	Dodge City	2900	603	38
Prusa	Barton	Sinclair-Prairie Oil Co.'s Oeser 1, SEc SW 17-16-11w	3- 9-39	Lansing-K. C.	3263	¶28.5	....
Kruckenberg	Barton	Amerada Petroleum Corp.'s Nerten 1, C NW NW 14-19-15w	4-19-39	Lansing-K. C.	3395	437	27.4
Coal Creek	Barton	Martin et al's Feltes 1-A, NW SW SE 8-16-12w	4-12-39	Topeka	2900	2546	35
Goodrich	Sedgwick	Ace Oil Co.'s Black 1, NW SE NE 21-25-1e	4-19-39	Lansing	2280	1975	39
Fairfield N.	Russell	Cities Service Oil Co.'s Esfeld 1, NWc 22-15-13w	5- 3-39	Lansing-K. C.	3096	702	38
Gardner	Johnson	O. K. Supply Co.'s Kanabe 1, C NE NE 15-14-22e	5-10-39	Squirrel	856	30	25
Prusa	Barton	Sinclair-Prairie Oil Co.'s Schmitt 1, NEc NW 20-16-11w	5-10-39	Basal sand	3310	213	39.3
Prusa	Barton	Sinclair-Prairie Oil Co.'s Oeser 2, SEc 17-16-11w	5-31-39	Lansing-K. C.	3426	57	36
Silica	Rice	Central Petroleum Co.'s Dippel 1, C N½ NE SE 27-19-10w	6-28-39	Lansing-K. C.	3313	96	47.6
Burnett	Ellis	Central Petroleum Co.'s Hadley 6, NEc SE 12-11-18w	7- 5-39	Lansing-K. C.	3096	1896	38.1
Medicine Lodge	Barber	Barber Oil Co.'s Holmes 3A, C E½ NW SE 15-33-13w	7-19-39	Misener	4868	551	39.5
Sycamore	Montgom'y	Lerke et al's Clemmer 1, C SW 21-31-15e	8- 8-39	Arbuckle	1537	120	42
Bloomer	Ellsworth	Polhamus et al's Mathews 1, C S½ SW SW 19-17-10w	9-27-39	Conglomerate	3304	273	43
N. Fairfield	Russell	Wakefield's Meharg 1, SEc 16-15-13w	10-17-39	Arbuckle	3339	349	38
Lyons	Rice	Derby Oil Co.'s Williams 1, C NW NE 14-20-8w	12- 1-39	Simpson Sand	3281	240	36

¶ Indicates million cubic feet of gas.



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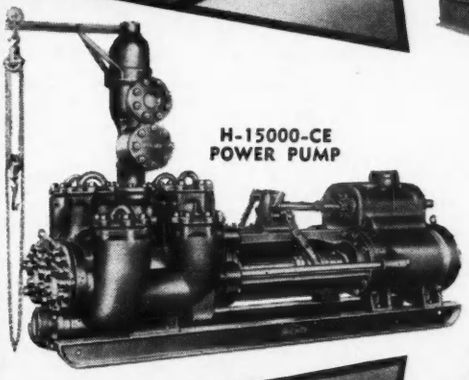
CROWN BLOCK



H-15000-CE
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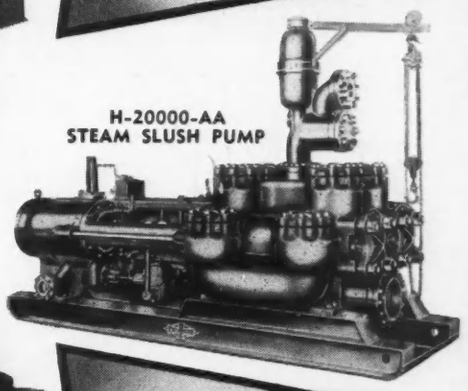

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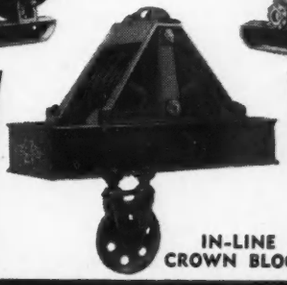

IN-LINE
CROWN BLOCK

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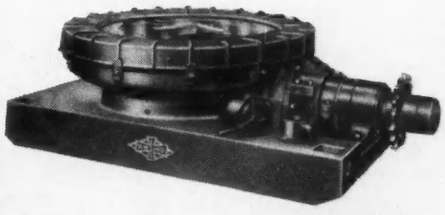
TRAVELING BLOCK



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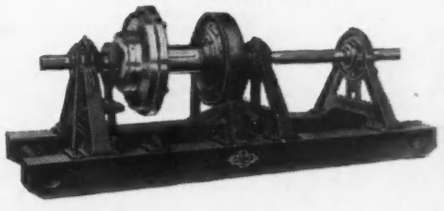
OIL BATH ROTARY



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Chattanooga, Tenn.

Four Wyoming Fields Among Five 1939 Rocky Mountain Discoveries

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Montana							
Chinook	Blaine	Montana Gas Corp's. Bowes 1, NE SE NW 34-32n-192	11-14-39	Eagle	795	¶26.	....
Wyoming							
Horne	Carbon	Gaylord & Martin's Horne 1, CNL NW SW 22-22n-98w	10-15-39	Muddy	820	¶12.	....
Spring Creek	Fremont	F. F. Hintze's Government 1, NW NW 7-28n-92w	12-31-39	Second Wall Creek	1143	¶6.	....
Pinedale	Sublette	California Co.'s Unit 1, CSW NE 14-31n-1w	12-22-39	Fort Union	10003	¶10.	....
Dewey	Weston	Bruce Teeter's State 1, SW NE 36-42n-61w	8-30-39	Sundance	928	10	34
NEW PAY HORIZONS FOUND							
Montana							
North Cut Bank	Glacier	Nadeua Bros.' Crowley 2, CSW NW 24-37n-5w	6- 3-39	Sunburst	2796	50	35
Wyoming							
Cole Creek	Natrona	General Petroleum Corp.'s Government 1, NW NW SE 21-35n-77w	9- 1-39	Dakota	7935	100	32
Mule Creek	Niobrara	Fall River Royalty & Producers Co.'s Government 1, CSL SE SE SE 35-40n-6w	12- 4-39	Bell	2667	60	41
Lance Creek	Niobrara	Minnelusa Oil Corp.'s Joss 2, SE NE SW 6-35n-65w	6-16-39	Joss	5154	720	41

¶ Indicates million cubic feet of gas.

small. Hunton lime and Prue sand formations lead with 4 strikes each, while the Cromwell and Viola accounted for 2.

The state's principal producing horizon, the Wilcox sand, was not found productive on a single new structure and was proven in only two previously found fields.

Rocky Mountain Strikes

The Rocky Mountain States (Colorado, Montana and Wyoming) had 9 discoveries in 1939, an increase of 1 over 1938. Of the year's total 5 were new fields and 4 new productive sands were found in old fields. Wyoming again dominated the picture with 7 of the discoveries, while the other 2 were in Montana. For the second successive year, Colorado drew a blank.

Most important strike from a geological and wildcatting trend standpoint was the finding of gas in the Fort Union beds of Tertiary age in the Pinedale area of the Green River Basin. This well also established a new depth record for Wyoming and a new producing depth record (10,003 feet) for the Rocky Mountains. Heretofore, the Fort Union beds had been considered as non-bearing of either oil or gas. It is expected to be tested in many parts of the state, and unlike at Pinedale may be reached at depths less than 3000 feet in a large portion.

Twenty-two New Fields and Fourteen New Horizons Found in Oklahoma During 1939

Field	County	COMPANY, WELL AND LOCATION	Date	Producing Formation	Depth (Feet)	Initial Output	Gravity
Moss	Seminole	H. S. Moss' Leachman 1, C N½ SE NE 34-10n-6e	3-15-39	Cromwell	4264	595	40.5
....	Osage	I. T. I. O. Co.'s Osage 1, NWc SE 26-25n-6e	4-18-39	Skinner	2741	35	40
....	Creek	Burke-Greis Oil Co. et al's Vanderslice 1, NEc SE 30-14n-7e	4-19-39	Prue	2884	¶4.	....
....	Payne	Starr O. & G. Co.'s Georgia 1, SE SW NE 35-18n-4e	5- 9-39	Prue	3490	¶1.18	....
Newalla	Oklahoma	Eldridge's White 1, C NE NE 30-11n-1e	5-24-39	Hunton	6070	175	36.1
West Doyle	Stephens	Phillips Petroleum Co.'s Culbertson 1, NWc SE 4-1n-5w	5-25-39	Deese	5616	1071	42
....	Garvin	Kerlyn Oil Co.'s Butterly 1, NEc SE 22-1n-1e	6- 1-39	Prue	5005	¶2.6	....
....	Osage	Charles Petroleum Co.'s Osage 1, C S½ SW NW 10-28n-11e	6-21-39	Wayside	992	120	38
East Bruce	Creek	Strozier's Baker 1, NE SE NW 20-17n-9e	6-27-39	Bartlesville	2546	150	42
Burton	Seminole	Culver et al's Burton-Swan 1, SW NW SE 3-5n-5e	7-12-39	Hunton	2668	450	38
Alma	Pottawatomie	Alma Oil Co.'s Johnson 1, SW NW SW 19-6n-5e	7-19-39	Earlsboro	4062	231	32
Hobart	Kiowa	Gled Oil Co. et al's Kelsay 1, SWc NW 20-7n-17w	8-29-39	Pontotoc	1055½	1500	35.1
....	Carter	Pure Oil Co.'s Noble 1, C NE SE 35-3s-1e	9-12-39	Woodford	4454	100	35.5
Pace	Pottawatomie	George Pace's Hale 1, C SW NE 31-10n-5e	9-13-39	Viola	4458	1024	41.5
Rixleben	Pontotoc	Grisso Royalty Co et al's Haskins 1, SE SW SW 27-5n-4e	9-20-39	Hunton	2639	50	37
Leach	Okfuskee	Doak et al's Community 1, NE SW NE 16-10n-11e	9-27-39	Cromwell	2841	65	37
....	Hughes	Stanley Rogers et al's Scott 1, SE SW NW 23-6n-8e	10- 9-39	Booch	2676	150	36
Butcher	Pottawatomie	S. D. Butcher's Mickish 1, SWc NW 36-10n-4e	10-13-39	Hunton	4532	1080	40.8
....	McIntosh	Pine's Marlin 1, C N½ SE NE 14-11n-16e	10-18-39	Sand	2372	¶4.5	....
....	Lincoln	Murray et al's Burke 1-A, NE SW NE 20-17n-6e	10-31-39	Prue	2910	25	44
....	McClain	Patsy Oil Co.'s James 1, NW NE NE 16-5n-3e	12-13-39	Viola	3623	1080	37.6
....	Kingfisher	Anderson-Prichard Oil Corp. et al's Geis 1, C NE SW 15-18n-9w	12-16-39	Oswego	7365	¶2.75	....
NEW PAY HORIZONS FOUND							
Chickasha	Grady	Carter Oil Co. et al's Smith 1, C SE SW 26-5n-8w	5-10-39	Sand	6613	¶13.2	....
Hazel	Seminole	Villines' Millsap 2, SW NW SW 23-7n-5e	7-12-39	Calvin	2800	120	43
East Earlsboro	Seminole	Magnolia Petroleum Co.'s Anderson 4, SW NW SE 18-9n-6e	7-15-39	Boggy	3870	125	39
Red Fork	Tulsa	Tiffany's Sand Springs Home 1, SE NW SW 26-18n-11e	7-27-39	Big Lime	847	150	34
Lucien	Noble	Stanolind O. & G. Co.'s Sharp "A" 2, SWc NW 34-20n-2w	8- 1-39	Layton	4280	66	67
Doyle	Stephens	Sunray Oil Co.'s Hefner 1, SEc NW 12-1n-5w	10- 2-39	Deese	5580	88	31.1
Canyon Creek	Osage	Norbla Drilling Co. et al's Osage 5, SE SWc NW 20-23n-10e	10- 3-39	Arbuckle	2536	105	32
Langston	Logan	Sinclair-Prairie Oil Co.'s Ford 1, SW NW NE 12-17n-1w	10- 6-39	Wilcox	5152	440	45
Laffoon	Lincoln	Yorkan Producing Co.'s Tipton 1, C NW SW 15-13n-6e	10- 7-39	Hunton	4200	200	38.5
Chickasha	Grady	Alma Oil Co.'s Pettit 5, SEc 11-4n-8w	11-15-39	Sand	3366	60	26.5
Chickasha	Grady	Sinclair-Prairie Oil Co.'s Charleston 4, NEc SE 27-5n-8w	11-15-39	Sand	3968	¶72.	....
Calvin	Hughes	Phillips Petroleum Co.'s Shenwell 1, C SE NW 8-5n-10e	11-16-39	Cromwell	5595	¶38.	....
Milroy	Stephens	Carter Oil Co. et al's Harley 1, C NE NE 24-2s-4w	12- 1-39	Hunton	8157	2375	35.5
Broyles	Payne	Mulberry Oil Co.'s Broyles 9, NWc NE NW 26-19n-4e	12-27-39	Wilcox	3833	155	43.5

¶ Indicates million cubic feet of gas.

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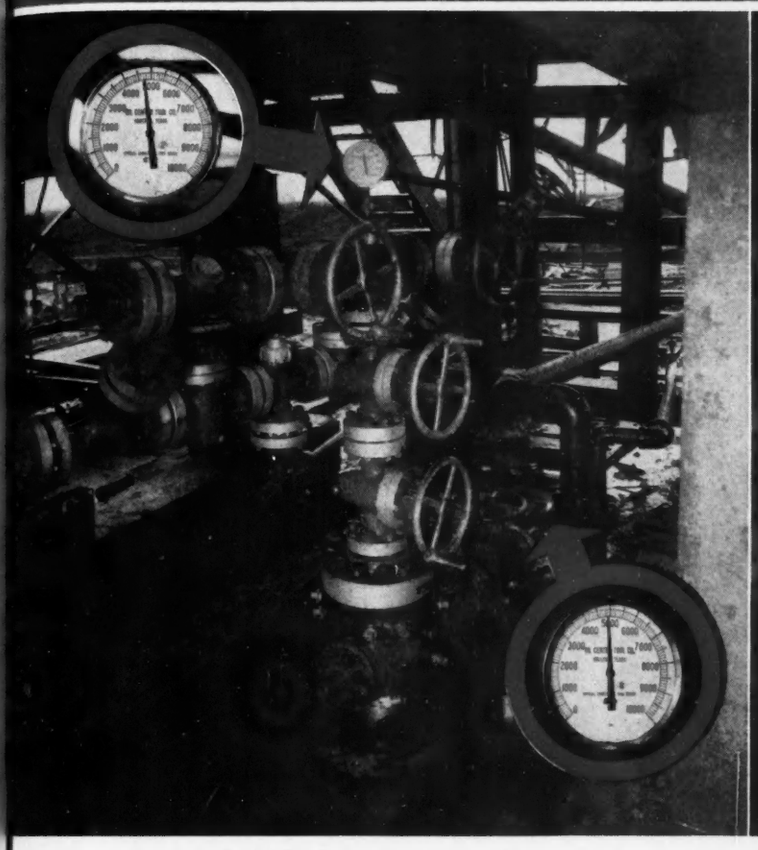
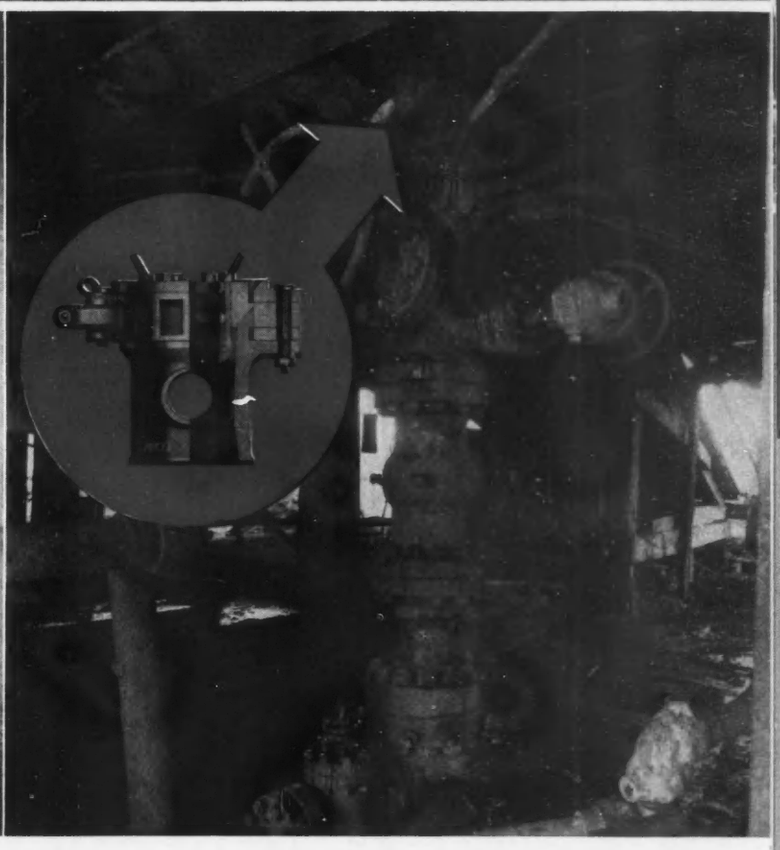
DRILLED IN AND COMPLETED THROUGH O-C-T EQUIPMENT





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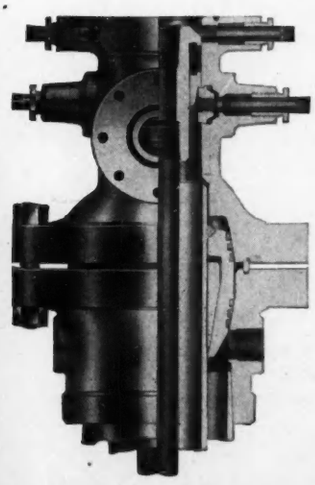
The deep, high pressure field of League City (Texas Gulf Coast) provides additional proof of the sound design and the margin of safety built into O-C-T equipment.

The above photographs show an O-C-T Type "D" Preventer on top of a drilling-in hook-up and a 10,000 Lbs. Test O-C-T Christmas Tree on a completed well in the League City field. The Type "D" Preventer with regular pack-off provides an essential secondary seal above the ram-type preventer as shown upper right. Equipped with a stripper type pack-off which readily passes pipe collars and tool joints, it permits running and pulling tubing, drill pipe, or casing with complete safety. The Christmas Tree is assembled on a Type "C-7X" Casing Head and Type "T-26" Tubing Head. (See cross-section drawing herewith.) The "C-7X" Casing Head provides slip suspension for suspending and sealing the longest and heaviest strings of casing. The slips and hanger are made in one unit, which readily passes through oversize blowout preventer equipment. After suspending the casing, it is then welded to the top of the hanger. The "T-26" Tubing Head permits drilling-in and running and landing tubing through **either screwed or flanged** blowout preventer equipment.



Cross-section view of an O-C-T Type "T-26" Tubing Head flanged above an O-C-T Type "C-7X" Casing Head.

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O-C-T MANUFACTURES A COMPLETE LINE OF CONTROL EQUIPMENT FOR DRILLING AND PRODUCING WELLS

U. S. Drilling Above Average Level in 1939 Despite Drop

Completion of 28,274 tests represents a decrease of 2.5 percent; which is still 28 percent larger than the average annual rate for the past decade

By Z. H. MISCHKA, Staff Writer

UNITED STATES operators slackened their drilling pace only slightly during 1939 in the face of a 15 percent drop in the average price of crude oil.

The 27,550 wells completed during 1939 fell only 722, or 2.6 percent under the 28,272 wells completed during the previous year. During the same period the industry faced numerous difficulties, some of which were reflected in a drop from $1.15 to 98 cents a barrel in the average price of crude oil.

Drilling last year continued, however, at a rate far in advance of the average for the past decade and the past 15 years. The 27,550 wells completed during 1939 were 5999 or 28 percent more than the 21,551 average for the past decade; and 5174 or 23 percent more than the 22,376 average for the past 15 years.

The post-war year of 1920, when operations were stimulated by an abnormally high price of crude that averaged $3.07 a barrel, established an all-time high for completed wells. Last year's completions were 8361 or 25 percent under that year's record of 33,911.

Second Successive Drop

Last year marked the second successive year in which drilling activity dropped. A comparative high was established in 1937 with 33,112 completed wells, closely approaching the industry's all-time

United States Drilling in 1938 and 1939

STATE	Completions 1938	Completions 1939	Percent Change	Oil Wells 1938	Oil Wells 1939	Gas Wells 1938	Gas Wells 1939	Dry Holes 1938	Dry Holes 1939	Initial Oil Production (Barrels Daily) 1938	Initial Oil Production (Barrels Daily) 1939
Alabama	1	1	.....	.....	.....	....	....	1	1	.....	.....
Arizona	....	3	.....	.....	.....	....	....	....	3	.....	.....
Arkansas	224	229	+ 1.8	186	181	4	5	34	43	155,790	110,182
California	1,270	1,037	— 18.4	1,014	838	9	17	247	182	944,518	452,528
Colorado	11	19	+ 72.5	5	7	....	2	6	10	595	966
Florida	.....	.....	.....	.....	.....	....	....	....	....	.....	.....
Georgia	....	1	.....	.....	.....	....	....	....	1	.....	.....
Illinois	2,032	3,806	+ 87.4	1,576	3,027	18	25	438	754	423,958	1,164,378
Indiana	163	294	+ 80.5	45	135	41	28	77	131	2,097	39,500
Kansas	1,642	1,450	— 11.8	1,150	1,022	58	66	434	362	1,322,398	[5]2,138,859
Kentucky	796	657	— 17.7	411	269	124	98	261	290	38,504	13,615
Louisiana	1,072	1,176	+ 9.6	694	769	72	43	306	364	307,416	228,526
North Louisiana	508	351	— 30.9	358	216	59	29	91	106	169,923	62,986
South Louisiana	564	825	+ 46.1	336	553	13	14	215	258	137,493	165,540
Michigan	999	1,455	+ 45.3	588	839	25	58	386	558	192,081	372,552
Mississippi	21	20	— 4.8	.....	7	6	....	15	13	.....	3,768
Missouri[9]	164	82	— 50.0	15	4	60	15	89	63	113	40
Montana	79	152	+ 92.5	52	116	12	9	15	27	8,868	12,914
Nebraska	1	2	+100.0	.....	1	....	....	1	1	.....	150
New Mexico	534	654	+ 22.4	460	553	15	12	59	89	233,750	273,301
New York	[1]692	[2]672	— 2.9	[1]621	[2]632	57	23	14	17	1,471	2,610
North Dakota	1	....	.....	.....	.....	....	....	1	....	.....	.....
Ohio	923	991	+ 7.4	268	262	383	458	272	271	5,668	3,881
Oklahoma	2,087	2,081	— 0.3	1,303	1,240	145	148	639	693	342,164	391,209
Pennsylvania	[3]2,583[6]	[4]2,547	— 1.4	[3]2,380[6]	[4]2,277	118	190	85	80	5,318	2,206
Tennessee	2	33	+1550.	1	7	1	1	....	25	240	840
Texas	12,184	9,436	— 22.6	9,149	6,700	369	277	2,666	2,459	12,925,511	4,801,227
East Texas Field	1,806	425	— 76.5	1,765	417	....	....	41	8	8,790,884	1,483,646
Rest of East Texas	487	303	— 38.0	306	130	35	32	146	141	162,954	41,947
North Texas	2,398	1,714	— 28.5	1,636	1,065	17	9	745	640	798,980	643,525
South Texas	2,744	2,710	— 1.2	1,751	1,771	128	79	865	860	725,443	667,429
Corpus Christi Area	1,216	1,326	+ 9.5	853	1,002	68	45	295	279	565,653	542,601
Laredo Area	1,057	1,001	— 5.3	667	604	52	28	338	369	140,096	111,441
San Antonio Area	471	383	— 18.7	231	165	8	6	232	212	19,694	13,387
Texas Gulf Coast	1,522	1,291	— 15.3	1,187	980	47	48	288	263	487,111	297,089
Texas Panhandle	571	453	— 20.6	445	347	98	82	28	24	219,720	126,175
West Texas	2,290	2,045	— 10.7	1,921	1,796	16	4	353	245	1,724,445	1,453,674
West Central Texas	366	495	+ 35.2	138	194	28	23	200	278	15,974	87,743
Utah	4	2	— 50.0	.....	.....	1	....	3	2	.....	.....
West Virginia	679	621	— 8.5	123	112	445	417	111	92	1,480	2,297
Wyoming	108	129	+ 18.2	65	93	14	10	29	26	30,840	95,506
Total	28,272[7]	27,550[8]	— 2.6	20,106[7]	19,091[8]	1,977	1,902	6,189	6,557	16,942,780	10,111,055

[1] Includes 208 water-intake and pressure wells in Allegany district.
[2] Includes 252 water-intake and pressure wells in Allegany district.
[3] Includes 1,139 water-intake and pressure wells: 1,119 at Bradford and 20 in Clarion-Venango district.
[4] Includes 1,106 water-intake and pressure wells: 1,099 at Bradford and 7 in Clarion-Venango district.
[5] Includes approximately 1,000,000 barrels of initial production calculated by productivity-index methods.
[6] Pennsylvania figures for 1938 as published year ago revised upward to embody Bradford field data by The Producers Monthly, official organ of Bradford District Pennsylvania Oil Producers Association, which reported total of 1,032 oil wells and 1,119 water-intake wells completed in 1938.
[7] Includes 1,347 water-intake and pressure wells: 208 in New York and 1,139 in Pennsylvania.
[8] Includes 1,358 water-intake and pressure wells: 252 in New York and 1,106 in Pennsylvania.
[9] Missouri data for 1938 herewith added to The Oil Weekly's records.

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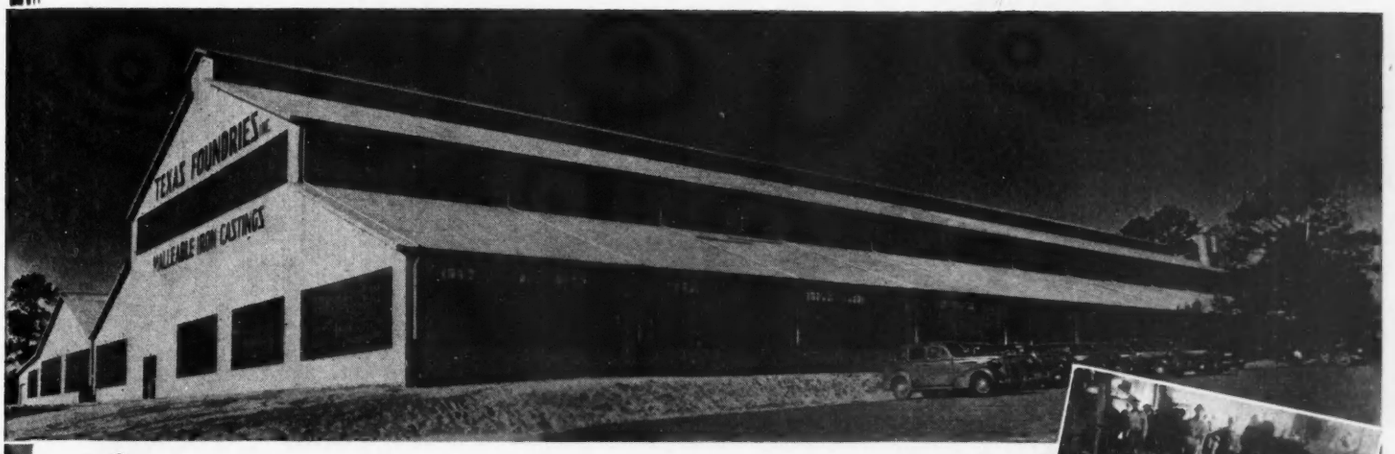

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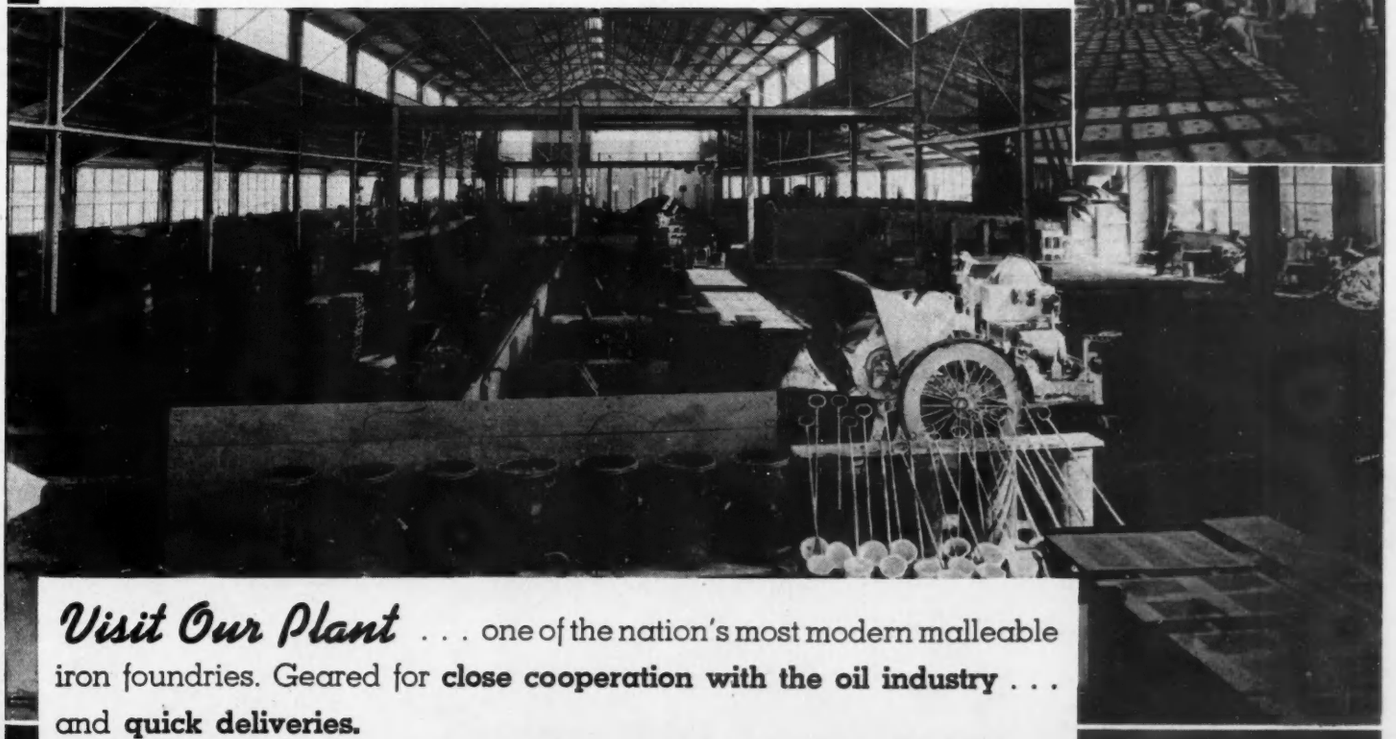

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Wells Drilled for Oil and Gas in the United States—1859-1939

Source of data: Cumulative totals for 1859-1922 from Bureau of Mines; rest of figures based on weekly reports of completions, as published regularly by The Oil Weekly.

YEAR	Wells Completed	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production	Average per Well
1859–1922	615,353	481,863[1]	14,542[1]	118,948	18,842,525[2]	....
1923	20,513	13,407	1,892	5,214	5,920,019	395
1924	21,713	14,311	2,250	5,152	3,248,211	227
1925	25,406	16,162	2,644	6,600	4,640,924	183
1926	28,995	17,787	2,848	8,360	3,876,811	218
1927	22,301	13,396	2,586	6,319	4,628,246	345
1928	19,964	10,982	2,733	6,249	6,406,370	583
1929	23,463	13,125	3,109	7,229	6,404,145	488
1930	19,848	10,745	3,006	6,097	10,443,833	972
1931	11,716	6,618	2,090	3,008	31,590,024	4,773
1932	14,290	10,151	1,012	3,127	49,471,119	4,873
1933	12,170	7,681	1,066	3,423	21,888,712	2,852
1934	18,949	12,959	1,342	4,648	31,346,356	2,419
1935	22,669	15,389	1,731	5,549	32,137,971	2,089
1936	26,935	18,937	2,336	5,662	22,295,012	1,179
1937	33,112[7]	24,140[7]	2,558	6,414	24,140,573	1,064
1938[6]	28,272[7]	20,106[7]	1,977	6,189	16,942,780	903
1939	27,550[7]	19,091[7]	1,902	6,557	10,111,055[8]	570
Total	993,219	726,850	51,624	214,745	304,334,686[4]	[3]

[1] Gas wells during the period prior to 1916 were included with oil wells.
[2] Initial production prior to 1916 not available.
[3] Includes only gas wells completed since 1916.
[4] Includes gas wells completed prior to 1916.
[5] Includes only initial production reported since 1916.
[6] Data for 1938 revised to include Missouri and to show additional completions at Bradford, Pennsylvania.
[7] Included with oil wells are water-intake and pressure wells in Pennsylvania and New York totaling 1451 in 1937, 1,347 in 1938, and 1,358 in 1939.
[8] Not as true a picture of actual initial productivity as in previous years, as Kansas potential determinations made by fluid-level metering were often 10 to 20 times as large as unofficial actual tests.

record. General business improvement and an average price of $1.20 a barrel for crude influenced 1937 drilling, while a year later a general business recession that reduced demand by about 5 percent and a drop to $1.15 in crude prices were reflected in a 16.9 percent drop in completions in 1938.

The industry in 1939 was confronted with continued diminishing revenues from producing wells, due to steady shrinkage in per well allowables and a further reduction of crude prices. Consequently, there was additional agitation for curtailment of unnecessary drilling. Therefore, it is somewhat surprising that as many wells were drilled.

A marked improvement in demand for the industry's products experienced in 1939, and which is expected to continue during 1940, was not sufficient to overcome unfavorable influences of lower crude prices and allowables.

The sum of completions reported each week by staff men of THE OIL WEEKLY represents the 27,550 wells reported for the year. Details of the wells were reported in field development columns of THE OIL WEEKLY throughout the year.

In the total are 17,731 oil wells, 1358 wells drilled for water intake and gas repressuring in Pennsylvania and New York, 1902 gas wells and 6557 dry holes. Tests completed successfully as oil, gas or repressuring wells comprised 76 percent of the total.

During 1938, oil wells totaled 18,759, water intake and repressuring wells numbered 1347, gas wells totaled 1977 and dry holes reached 6189. Successful completions were 78 percent of that year's total.

Nearly Billion Wells

The 27,550 wells completed in 1939 brought to 993,219 the total number of wells drilled in search of oil and gas since completion of the Drake well in 1859. Last year's drilling represented 2.8 percent of all completions of the past 80 years.

Of the 993,219 tests comprising the industry's drilling achievement to January 1, 1940, 78.4 percent were completed successfully as oil or gas wells, 726,850 as oil wells and 51,624 as gas wells.

A material increase in the number of dry holes drilled in 1939, while both completed oil wells and completed gas wells declined, lowered the percentage of successfully completed wells to 76.2 percent as contrasted to the all-time figure of 78.4 percent.

Wildcatting in Illinois, Michigan and Indiana, made attractive to independent operators because of the possibilities of shallow production, resulted in large gains in the number of dry holes drilled in those states in 1939. Other states in which the number of unsuccessful tests increased noticeably were Louisiana and New Mexico.

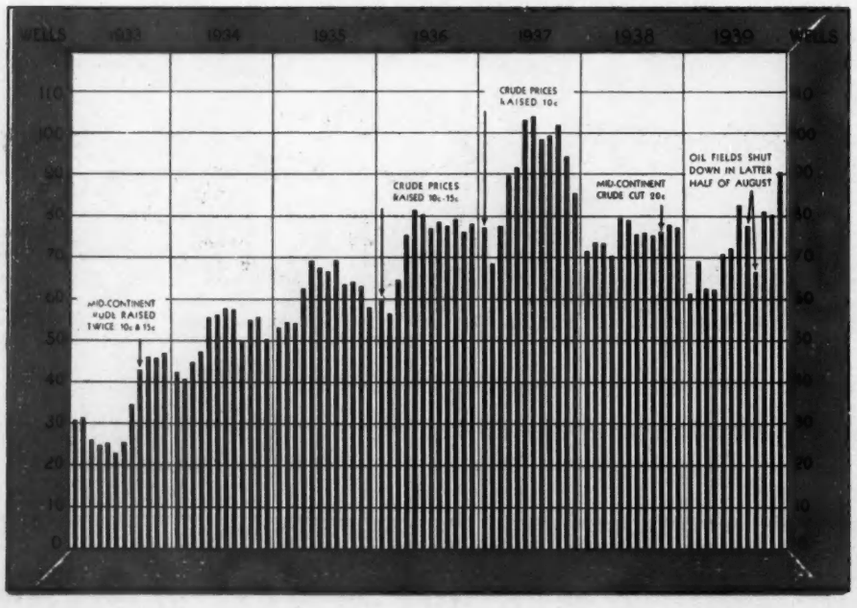
Initial Output Down

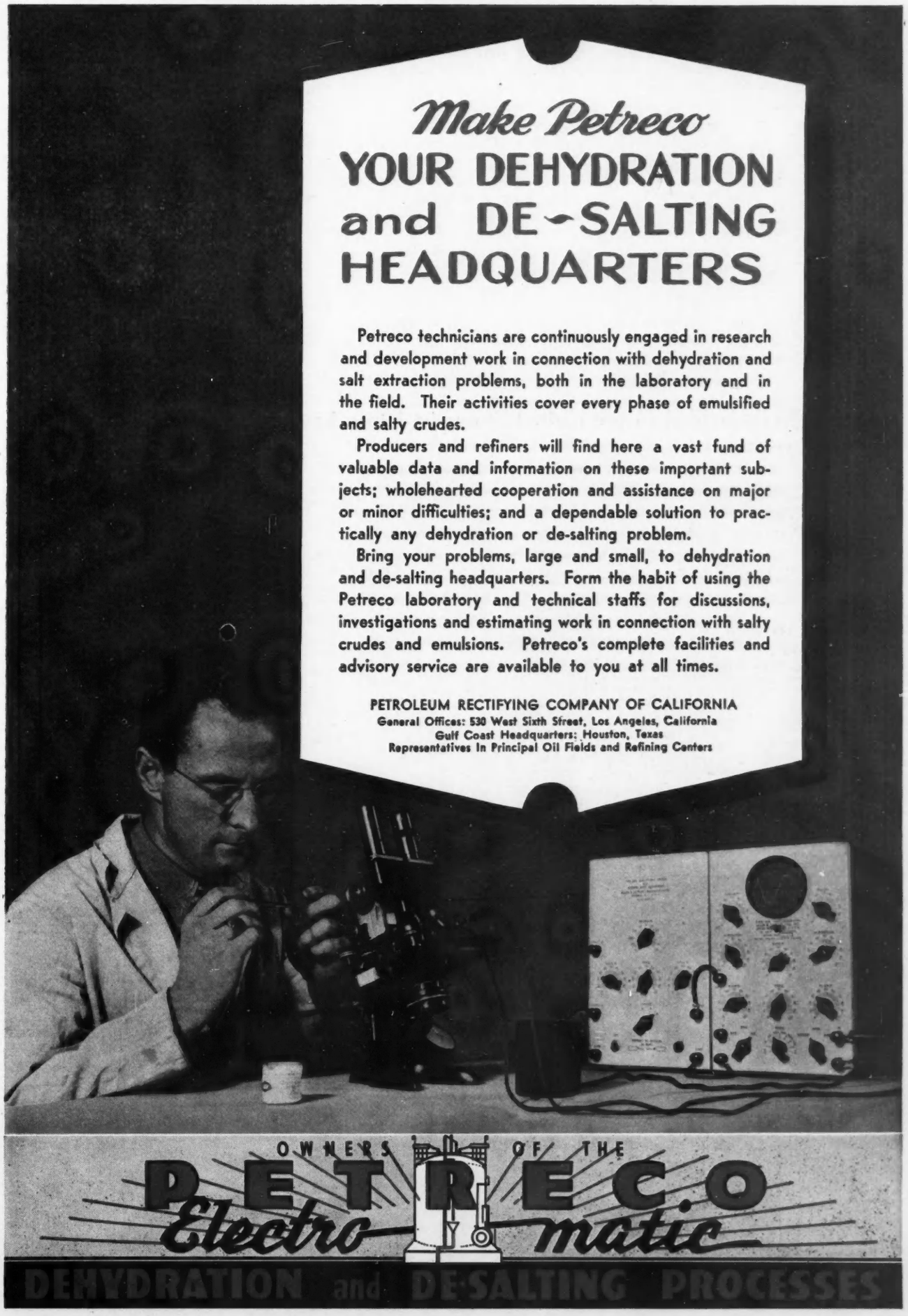
Oil wells completed in 1939 had an aggregate initial production of 10,111,055 barrels, or an average of 570 barrels per well. This is a sharp drop from 16,942,780 barrels, or an average of 903 barrels a well, initial production of wells completed in 1938.

A decrease from 1806 to 425 in

Average Number of Wells Completed Daily in U. S.

(By Months, January, 1933-December, 1939)

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the number of completed wells in East Texas, with a resulting loss of approximately 7,000,000 barrels in initial production, was the greatest single factor influencing the drop in average initial production of wells in the year just closed. A gradual decline in average initial production has been underway since 1933 as East Texas became less and less important from a drilling standpoint.

Illinois, as a year ago, furnished the most conspicuous advance in drilling. Completed wells, which gained 1624 in 1938 over the 408 of 1937, continued to increase; and in 1939 the previous year's total was topped by 1774 to make a total of 3806. The past year's lot included 3027 oil wells, 25 gas wells and 754 dry holes.

Illinois drilling offered nothing spectacular other than the increased number of completions. Oil wells were smaller, when compared on initial production basis, than average wells for the country as a whole; and those brought in flowing were put on the pump within a few weeks. The average initial production of oil wells completed in 1939 was 385 barrels, 185 barrels or 30 percent under the national average.

The state was attractive to operators, however, because of the comparative shallow depth to producing horizons and the ready market afforded the state's production. While pipeline proration cut back production in some areas for part of the year, Illinois operators were without state regulations establishing well allowables. Production of the 5000-odd oil wells drilled in new fields, representing development of the past three years, averaged 50 barrels of oil daily during 1939.

Illinois' 3806 completions were exceeded only by the 9436 drilled in Texas, and the north-central state ranked well ahead of Pennsylvania's 2547, Oklahoma's 2081, Michigan's 1455, Kansas' 1450, Louisiana's 1175 and California's 1037. Completed wells in other states fell below 1000.

Indiana responded to the exten-

Wells Drilled in the United States in 1939, by Counties and Fields

Alabama

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Barbour	1	.....	.....	1	.....
Total, 1939	1	.....	.....	1	.....
Total, 1938	1	.....	.....	1	.....

Arizona

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Apache	2	.....	.....	2	.....
Maricopa	1	.....	.....	1	.....
Total, 1939	3	.....	.....	3	.....
Total, 1938	.....	.....	.....	.....	.....

Arkansas

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Bradley	1	.....	.....	1	.....
Calhoun	1	.....	.....	1	.....
Clark	3	.....	.....	3	.....
Columbia:					
Buckner	3	3	.....	.....	1,750
Atlanta	4	4	.....	.....	1,231
Magnolia-Village	91	89	.....	2	60,155
Unclassified	5	1	.....	4	528
Franklin	2	.....	2	.....	.....
Layfayette	21	17	.....	4	7,749
Lawrence	1	.....	.....	1	.....
Little River	2	.....	.....	2	.....
Lonoke	3	.....	.....	3	.....
Miller	15	12	.....	3	3,348
Mississippi	1	.....	.....	1	.....
Nevada:					
Troy	7	6	.....	1	305
Wildcat	1	.....	.....	1	.....
Ouachita:					
Barham	1	.....	1	.....	.....
McDonald	1	.....	1	.....	.....
Smackover	1	1	.....	.....	15
Wildcats	2	.....	.....	2	.....
Pike	1	.....	.....	1	.....
Sebastian	1	.....	.....	1	.....
Union:					
Champagnolle	6	5	.....	1	3,066
Rainbow City	8	4	.....	4	930
Schuler	34	32	.....	2	30,845
Smackover	8	6	1	1	220
Urbana	3	1	.....	2	40
Wildcats	2	.....	.....	2	.....
Total, 1939	229	181	5	43	110,182
Total, 1938	224	186	4	34	155,790

California

Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Arvin	13	12	.....	1	11,497
Belridge, North	15	14	.....	1	4,207
Belridge, South	3	.....	.....	3	.....
Brea-Olinda	2	2	.....	.....	235
Buena Vista Lake	1	.....	.....	1	.....
Buttonwillow	2	.....	.....	2	.....
Canal	18	18	.....	.....	9,322
Capitan	1	.....	.....	1	.....
Coalinga	72	53	.....	19	60,304
Coles Levee	16	14	.....	2	11,851
Coyote, East	4	3	.....	1	989
Coyote, West	3	3	.....	.....	1,609
Delano	9	.....	9	.....	.....
Domingues	14	13	.....	1	7,085
Edison	7	5	.....	2	380
Elk Hill	2	2	.....	.....	197
Elwood	2	.....	.....	2	.....
Fairfield Knolls	1	.....	1	.....	.....
Fruitvale	18	12	.....	6	1,582
Greeley	10	9	.....	1	30,369
Goleta	2	.....	2	.....	.....
Huntington Beach	22	22	.....	.....	2,705
Kern River	44	31	.....	13	240
Kettleman Hills, Middle Dome	1	.....	.....	1	.....
North Dome	38	37	.....	1	57,722
Lawndale	1	.....	.....	1	.....
Long Beach	9	7	.....	2	1,124
Lost Hills	3	1	.....	2	69
Marysville Buttes	1	.....	1	.....	.....
McKittrick	10	4	.....	6	229
Midway-Sunset	30	18	.....	12	868
Montebello	134	132	.....	2	67,077
Mountain View	6	5	.....	1	2,660
Mount Poso	25	14	.....	11	2,170
Newport	1	.....	.....	1	.....
Paloma	1	1	.....	.....	2,246
Playa Del Rey	2	1	.....	1	90
Potrero	3	3	.....	.....	776
Richfield	7	3	.....	4	213
Rincon	8	8	.....	.....	1,896
Rio Bravo	15	14	.....	1	17,917
Rio Vista	2	.....	2	.....	.....
Rosecrans	34	30	.....	4	2,289
Round Mountain	16	11	.....	5	1,383
San Miguelito	6	4	.....	2	4,574
Santa Barbara	6	4	.....	2	4,744
Santa Fe Springs	1	1	.....	.....	394
Santa Maria	25	16	.....	9	24,214
Seal Beach	1	1	.....	.....	153
Semi-Tropic	2	.....	2	.....	.....
Strand	2	1	.....	1	2,040
Summerland	3	.....	.....	3	.....
Ten Section	11	11	.....	.....	16,372
Torrance	75	69	.....	6	198
Tupman	3	3	.....	.....	1,840
Ventura Avenue	37	37	.....	.....	37,235
Ventura-Newhall	26	15	.....	11	4,398
Wasco	4	4	.....	.....	19,047
Wheeler Ridge	1	1	.....	.....	104
Wilmington	169	169	.....	.....	35,914
Misc. Wildcats	37	.....	.....	37	.....
Total, 1939	1,037	838	17	182	452,528
Total, 1938	1,270	1,014	9	247	944,518

Colorado

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Boulder	1	.....	.....	1	.....
Elbert	1	.....	.....	1	.....
Fremont	3	1	.....	2	30
Grand	1	.....	.....	1	.....
Larimer	1	1	.....	.....	191
Mesa	2	.....	.....	2	.....
Moffat:					
Hiawatha Dome	2	.....	2	.....	.....
Iles Dome	1	1	.....	.....	60
Thornburg Dome	1	.....	.....	1	.....
Wildcats	1	1	.....	.....	210
Prowers	1	.....	.....	1	.....
Rio Blanco	3	3	.....	.....	475
Routt	1	.....	.....	1	.....
Total, 1939	19	7	2	10	966
Total, 1938	11	5	.....	6	595

Georgia

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Pierce	1	.....	.....	1	.....
Total, 1939	1	.....	.....	1	.....
Total, 1938	.....	.....	.....	.....	.....

Illinois

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Alexander	1	.....	.....	1	.....
Adams	2	.....	.....	2	.....
Bond	12	1	.....	11	15
Brown	4	.....	.....	4	.....
Bureau	1	.....	.....	1	.....
Champaign	3	.....	.....	3	.....
Christian	3	.....	.....	3	.....
Clark	25	4	.....	21	115
Clay	171	148	.....	23	72,374
Clinton	80	45	.....	35	2,706
Coles	18	4	.....	14	51
Crawford	7	2	.....	5	12
Cumberland	12	.....	.....	12	.....
Douglas	2	.....	.....	2	.....
Edgar	10	.....	.....	10	.....
Edward	26	10	.....	16	2,083
Effingham	11	.....	.....	11	.....
Fayette	1,109	1,028	2	79	327,621
Franklin	10	1	.....	9	48
Fulton	3	.....	.....	3	.....
Gallatin	16	3	.....	13	276
Greene	2	.....	.....	2	.....
Hamilton	6	.....	.....	6	.....

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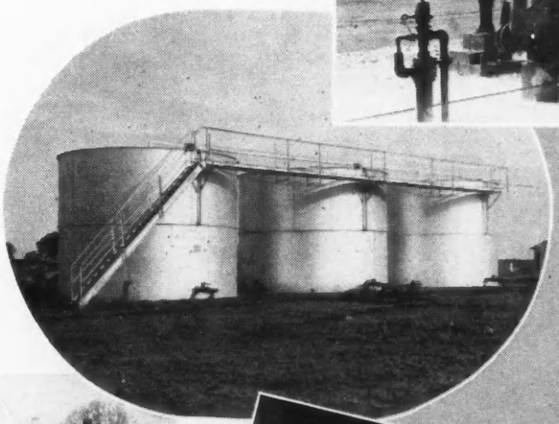

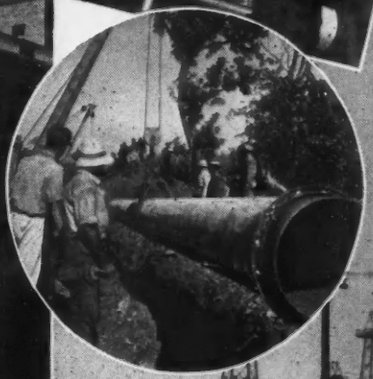

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The Oil Bank of America

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LOOKING UP!

You can't dig wells with sentiment, nor produce nor transport nor refine oil with anything but men, money and good equipment. Anybody will tell you, too, that men engage in business for profit only. But with all this, American conceptions of good business include deep-seated ideals and ambitions and loyalties, seldom mentioned, but written between the lines in any Yearbook of oil industry progress . . . a process of looking up and on.

Drake must have felt the force of impending events—a civilization on wings, a nation on wheels. The man was looking up. Frick-Reid customers at seventy-four stores in old and new fields have everywhere something of that same attitude.

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FRICK-REID
Supply Corporation

TULSA, OKLAHOMA

sive drilling campaign conducted in adjoining Illinois, and in 1939 ran up a completion total of 294, or 80.5 percent more than the 163 of the previous year.

Kentucky, which a year earlier had profited by the Illinois basin campaign, slipped during 1939. Completed wells dropped from 796 to 657, or 17.7 percent.

Several price advances in Pennsylvania grade crude late in the year stimulated drilling in the Eastern States, but the increased activity in the closing months was not sufficient to overcome losses in Pennsylvania, New York or West Virginia chargeable to low prices that prevailed during the early part of the year.

Pennsylvania completions dropped from 2583 in 1938 to 2547, or 1.4 percent; New York completions declined from 692 to 672, or 2.9 percent, and West Virginia completions dropped from 679 to 621, or 8.5 percent.

Ohio was alone among eastern states registering an increase in completed wells; the state's total climbed from 923 to 991, a gain of 7.4 percent.

Texas Areas

West Central Texas and the Corpus Christi area of South Texas were the only divisions of the nation's largest oil state to register drilling increases. Declines in other parts of the state ranged from 1.2 percent in the full South Texas

Wells Drilled in the United States in 1939, by Counties and Fields—(Continued)

Illinois—Continued

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Hancock	4	1	....	3	3
Henderson	1	.....	....	1	.....
Jackson	2	.....	....	2	.....
Jasper	9	1	....	8	10
Jefferson	88	38	....	50	7,454
Jersey	1	.....	....	1	.....
Johnson	1	.....	....	1	.....
Lawrence	51	8	21	22	82
Macon	2	.....	....	2	.....
Macoupin	4	.....	....	4	.....
Madison	11	1	1	9	150
Marion	1,303	1,206	....	97	627,351
McDonough	8	.....	....	8	.....
McLean	1	.....	....	1	.....
Menard	1	.....	....	1	.....
Monroe	14	7	....	7	204
Montgomery	13	.....	....	13	.....
Morgan	1	.....	....	1	.....
Moultrie	4	.....	....	4	.....
Perry	12	.....	....	12	.....
Pike	2	.....	....	2	.....
Platt	1	.....	....	1	.....
Randolph	6	.....	....	6	.....
Richland	89	73	....	16	12,338
Saline	6	.....	....	6	.....
Sangamon	3	.....	....	3	.....
Schuyler	1	.....	....	1	.....
Shelby	21	1	....	20	150
St. Clair	39	19	....	20	1,079
Tazewell	2	.....	....	2	.....
Wabash	169	130	....	39	35,551
Warren	1	.....	....	1	.....
Washington	115	82	....	33	7,200
Wayne	221	182	....	39	61,125
White	58	32	1	25	6,378
Williamson	7	.....	....	7	.....
Total, 1939	3,806	3,027	25	754	1,164,378
Total, 1938	2,032	1,576	18	438	423,958

Indiana

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Adams	1	.....	....	1	.....
Blackford	3	.....	....	3	.....
Cass	1	.....	....	1	.....
Clay	1	.....	....	1	.....
Daviess	6	1	1	4	5
Dearborn	2	.....	....	2	.....
Decatur	4	.....	....	4	.....
Delaware	1	.....	....	1	.....
Dubois	2	.....	....	2	.....
Gibson	93	72	1	20	27,552
Hancock	3	.....	....	3	.....
Harrison	4	.....	1	3	.....
Henry	1	.....	1	....	.....
Huntington	3	2	....	1	9
Jackson	1	.....	....	1	.....
Jay	3	1	....	2	10
Johnson	1	.....	....	1	.....
Knox	8	1	....	7	15
Orange	2	.....	....	2	.....
La Porte	1	.....	....	1	.....
Madison	1	.....	....	1	.....
Marion	2	.....	1	1	.....
Martin	3	.....	....	3	.....
Monroe	1	.....	....	1	.....
Owen	1	.....	....	1	.....
Perry	1	.....	....	1	.....
Pike	13	1	6	6	35
Posey	49	35	1	13	11,019

(Continued in next column)

Indiana—Continued

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Shelby	2	.....	2	.....	.....
Spencer	33	8	10	15	207
Sullivan	12	2	4	6	15
Vanderburg	21	7	....	14	173
Vigo	6	3	....	3	310
Warrick	8	2	....	6	150
Total, 1939	294	135	28	131	39,500
Total, 1938	163	45	41	77	2,097

Kansas

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Atchison	1	.....	....	1	.....
Barber	12	4	5	3	1,258
Barton	165	110	3	52	148,360*
Butler	69	42	5	22	2,920
Chase	2	.....	....	2	.....
Comanche	1	.....	....	1	.....
Coffey	5	2	....	3	22
Cowley	131	84	6	41	251,668*
Dickinson	1	.....	....	1	.....
Douglas	4	1	1	2	5
Ellis	104	94	....	10	1,035,480*
Ellsworth	44	39	....	5	61,961
Finney	1	1	....	....	1,724
Franklin	2	.....	....	2	.....
Geary	1	.....	....	1	.....
Graham	6	5	....	1	5,306
Grant	4	.....	4	....	.....
Gray	1	.....	....	1	.....
Greenwood	61	34	3	24	836
Harvey	13	8	....	5	5,333
Haskell	2	.....	2	....	.....
Jefferson	2	.....	....	2	.....
Johnson	31	15	4	12	208
Kingman	8	4	1	3	157
Kiowa	1	.....	....	1	.....
Leavenworth	1	.....	....	1	.....
Lyon	1	.....	....	1	.....
Marion	20	15	....	5	3,171
McPherson	61	50	....	11	24,406
Mead	2	.....	....	2	.....
Ness	1	1	....	....	260
Norton	1	1	....	....	200
Osage	1	.....	....	1	.....
Ottawa	1	.....	....	1	.....
Pawnee	3	1	....	2	354
Phillips	1	1	....	....	827
Pratt	25	7	16	2	2,524
Reno	21	13	....	8	1,720
Rice	209	156	5	48	180,253
Rooks	15	11	....	4	8,365
Rush	4	2	....	2	178
Russell	247	217	1	29	288,451
Saline	2	.....	....	2	.....
Scott	1	1	....	....	.....
Sedgwick	15	3	1	11	2,025
Shawnee	1	.....	....	1	.....
Sherman	2	.....	2	....	.....
Stafford	100	85	....	15	109,445
Stevens	5	.....	5	....	.....
Summer	19	10	....	9	1,360
Woodson	17	4	2	11	72
Wyandotte	2	1	....	1	10
Total, 1939	1,450	1,022	66	362	2,138,859*
Total, 1938	1,642	1,150	58	434	1,322,398

*Includes initial production arrived at by productivity-ndex calculations, as well as that fixed by actual test.

Kentucky

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Breckenridge	21	3	2	16	20
Butler	53	26	....	27	434
Caldwell	1	.....	....	1	.....
Carter	1	.....	1	....	.....
Christian	3	.....	....	3	.....
Daviess	174	101	....	73	8,200
Estell	1	.....	....	1	.....
Floyd	29	.....	29	....	.....
Grayson	2	.....	....	2	.....
Hancock	41	6	4	31	79
Henderson	49	23	2	24	2,263
Hopkins	6	1	1	4	240
Knott	23	1	20	1	50
Knox	1	.....	....	1	.....
Lee	17	9	2	6	131
Magoffin	3	1	....	2	10
Marion	1	.....	1	1	.....
Martin	19	4	15	....	63
McLean	31	13	1	17	892
Meade	1	.....	....	1	.....
Muhlenberg	15	7	....	8	485
Ohio	102	43	3	56	490
Pike	17	1	14	2	1
Powell	34	30	....	4	257
Todd	3	.....	2	1	.....
Union	3	.....	....	3	.....
Webster	4	.....	1	3	.....
Wolfe	2	.....	....	2	.....
Total, 1939	657	269	98	290	13,615
Total, 1938	796	411	124	261	38,504

Louisiana Summary

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
North	351	216	29	106	62,986
South	825	553	14	258	165,540
Total, 1939	1,176	769	43	364	228,526
Total, 1938	1,072	694	72	306	307,416

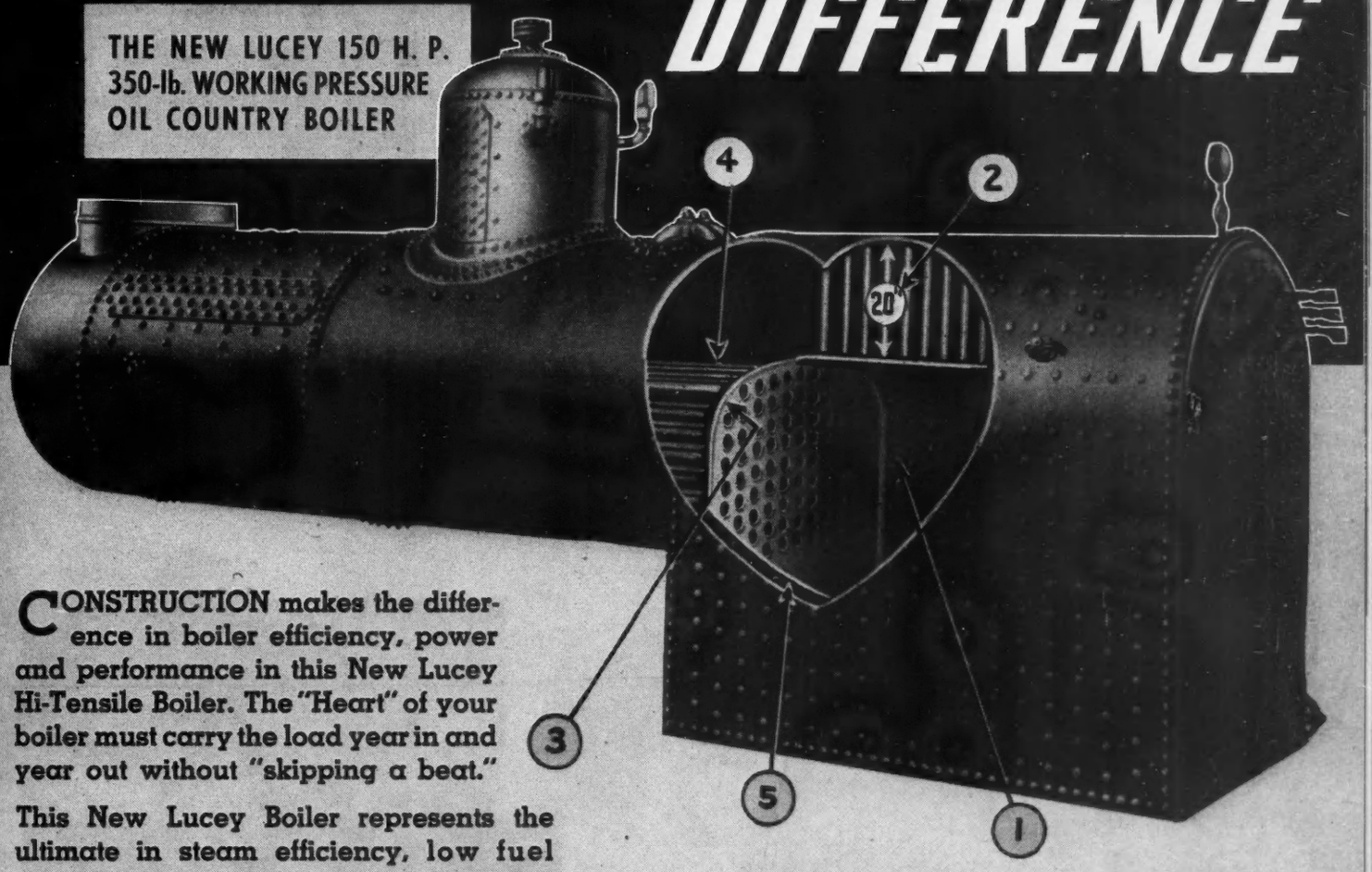
North Louisiana

Parish and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Bienville	11	1	9	1	160
Bossier:					
Bellevue	9	6	1	2	84
Cartersville	1	.....	....	1	.....
Lake Bisteneau	1	.....	....	1	.....
Sligo	5	3	2	....	760
Wildcats	2	.....	....	2	.....
Caddo:					
Pine Island	82	62	....	20	5,605
Rodessa	8	8	....	....	2,196
Shreveport	49	45	....	4	20,854
Vivian	29	12	....	17	3,815
Unclassified	5	.....	1	4	.....
Caldwell	1	.....	....	1	.....
Catahoula	2	.....	....	2	.....
Claiborne:					
Homer	4	4	....	....	28
Lisbon	4	3	....	1	811

(Continued on next page)

Construction *Makes the* DIFFERENCE

THE NEW LUCEY 150 H. P. 350-lb. WORKING PRESSURE OIL COUNTRY BOILER



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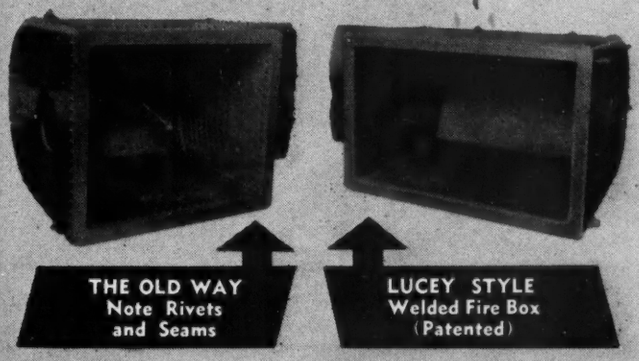

THE OLD WAY
Note Rivets and Seams

LUCEY STYLE
Welded Fire Box
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1. SEAMLESS FIRE BOX, LUCEY PATENT. No Rivets to Overheat or Burn. No Leaky Seams.
2. 20" Between Crown Sheet and Outside Wrapper. Plenty of STEAM SPACE with two gauges of water. EASILY COMPENSATING FOR THE ABSENCE OF THE DOME.
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phate with a Ph value of 4 to get the most economical treatment.

Reed rock bits were used almost exclusively. We found Type DK-1-T to be the best bit for formations encountered in this well.

We are enclosing a certified driller's log, mud chart, drilling chart, and a general layout of the rig and pits.

Very truly yours,
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By H. L. Edwards
President

MR. HARRY L. EDWARDS
HARRY L. EDWARDS DRILLING CO.
HOUSTON, TEXAS

BILLEAUD No. 1
BROUSSARD, LOUISIANA
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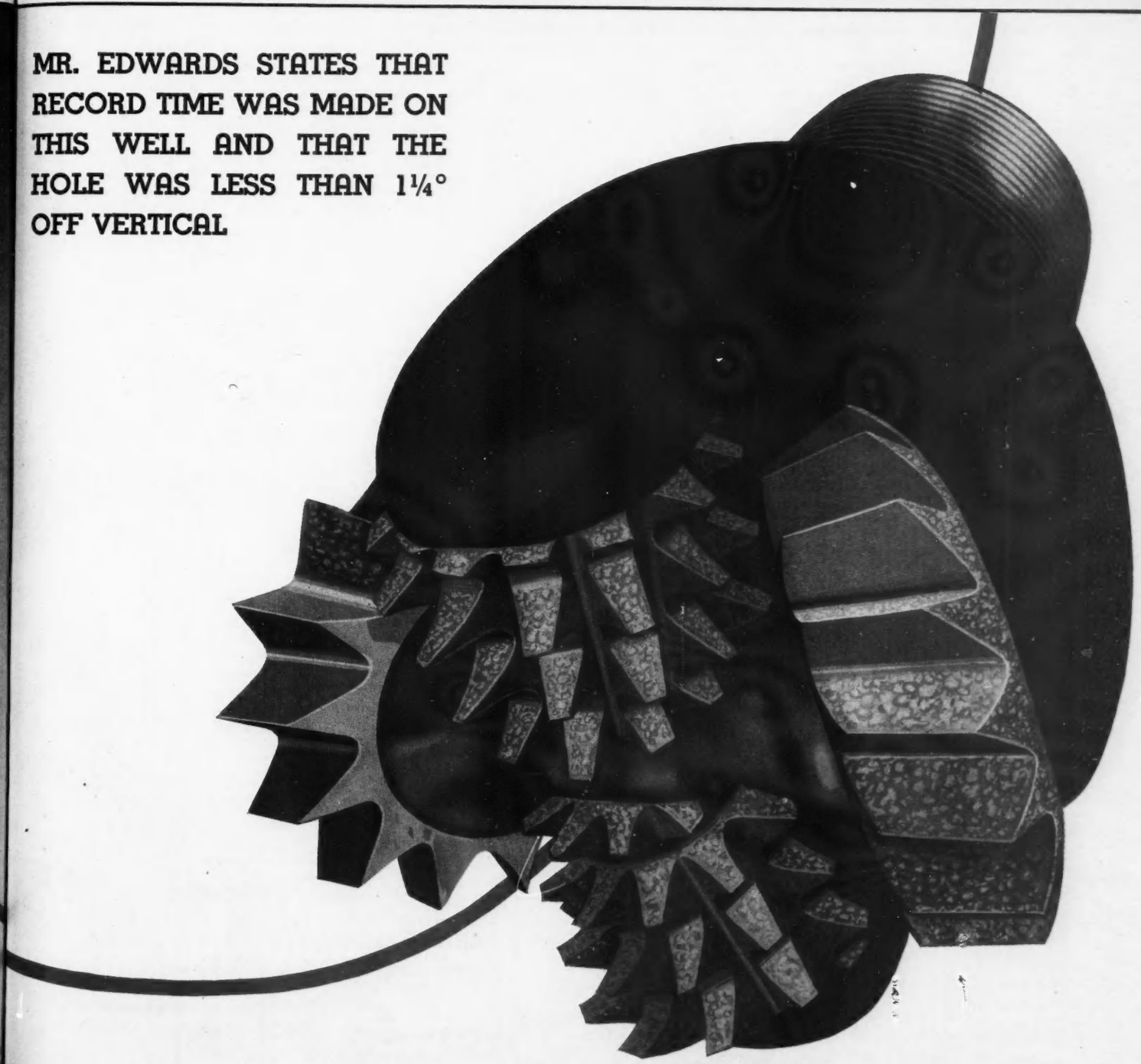
"were best for the formations encountered."

MR. EDWARDS STATES THAT RECORD TIME WAS MADE ON THIS WELL AND THAT THE HOLE WAS LESS THAN 1¼° OFF VERTICAL



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THIS WELL

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Rocky Mountain, Mid-Continent and Gulf Coast Distributors for Martin-Decker Products

district to 76.5 percent in the East Texas field. The state dropped from 12,184 to 9436 wells, or 22.6 percent.

East Texas, exclusive of the East Texas field, saw a drop from 487 to 303, or 38 percent, in the number of wells completed. North Texas, while not experiencing as great a percentage drop, only 28.5 percent, lost 684 wells from the 1938 completion total of 2398.

Declines in the Laredo area and the San Antonio area more than offset gains made in the Corpus Christi area to lower the South Texas completion total 1.2 percent from 2744 wells in 1938 to 2710 in 1939. The drop in Laredo was from 1057 to 1001, and in San Antonio from 471 to 383.

Texas Gulf Coast completed

Wells Drilled in the United States in 1939, by Counties and Fields—(Continued)

North Louisiana—Continued

Parish and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Sugar Creek	1	.....	....	1	.....
Concordia	1	.....	....	1	.....
De Soto:					
Nabortown	2	.....	....	2	.....
Unclassified	4	1	....	3	10
Franklin	2	.....	....	2	.....
Grant:					
Urania	6	4	....	2	235
Wildcats	2	.....	....	2	.....
La Salle:					
Urania	6	3	....	3	65
Wildcats	3	.....	....	3	.....
Madison	1	.....	....	1	.....
Morehouse:					
Monroe	2	.....	....	2	.....
Nachitoches	1	.....	....	1	.....
Red River:					
Bull Bayou	2	2	....	....	20
Sabine:					
Blue Lake-West Zwolle	2	.....	....	2	.....
Converse	4	4	....	....	557
Zwolle	26	12	....	14	1,615
Wildcats	4	1	....	3	10
Tensas	1	.....	....	1	.....
Union:					
Monroe	16	.....	16	....	.....
Wildcats	1	.....	....	1	.....
Webster:					
Cotton Valley	46	43	....	3	25,815
Sibley	1	.....	....	1	.....
Shongaloo	2	2	....	....	346
Wildcats	2	.....	....	2	.....
Total, 1939	351	216	29	106	62,986
Total, 1938	508	358	59	91	169,923

Louisiana Gulf Coast

Parish or Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Fields:					
Abbeville	7	4	....	3	400
Anse La Butte	1	.....	....	1	.....
Bancroft	26	24	....	2	5,988
Bateman Lake	4	3	1	....	623
Baton Rouge	55	49	3	3	13,545
Bay Baptiste	1	.....	....	1	.....
Bay St. Elaine	2	2	....	....	209
Bayou Blue	1	.....	....	1	.....
Bayou Des Allemandes	2	1	....	1	31
Black Bayou	3	.....	....	3	.....
Caillou Island	6	4	....	2	1,201
Cameron Meadows	5	1	....	4	67
Chacahoula	3	2	....	1	1,369
Chalkley	13	8	....	5	3,203
Charenton	121	96	1	24	18,422
Choctaw	4	4	....	....	859
Convent	2	1	....	1	204
Creole	6	4	1	1	1,370
Darrow	11	5	....	6	2,533
Delarge	1	.....	....	1	.....
Dog Lake	2	1	1	....	323
East Baton Rouge	3	.....	....	3	.....
East Hackberry	14	6	....	8	3,043
Edgerly	4	1	....	3	100
English Bayou	2	.....	1	1	.....
Eola	48	42	....	6	23,883
Fausse Point	1	1	....	....	100
Garden Island Bay	7	7	....	....	1,751
Gibson	1	1	....	....	36
Gillis	3	3	....	....	666
Golden Meadows	54	42	1	11	.....
Grand Bay	8	7	....	1	3,006
Grand Lake	4	3	....	1	612
Gueydan	1	.....	....	1	.....
Horseshoe Bayou	3	1	1	1	360
Iowa	3	2	....	1	635
Jeanerette	2	1	....	1	340

(Continued in next column)

Louisiana Gulf Coast—Continued

Parish or Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Fields:					
Jefferson Island	4	2	....	2	779
Jennings	36	29	....	7	9,944
Kennilworth	1	.....	....	1	.....
Lafitte	7	6	....	1	7,187
Lafourche	3	2	....	1	539
Lake Barre	1	.....	....	1	.....
Lake Hermitage	2	1	....	1	130
Lake Long	3	3	....	....	628
Lake Mongou-lois	2	2	....	....	125
Lake Pelto	6	5	....	1	1,750
Leesville	5	3	....	2	591
Lirette	5	3	....	2	36
Little Bayou	2	1	....	1	440
Lockport	1	.....	....	1	.....
New Iberia	33	22	....	11	4,802
North Crowley	9	5	....	4	3,048
North Elton	1	1	....	....	25
North Tepetate	5	4	....	1	571
Paradis	1	1	....	....	1,710
Perkins	1	.....	....	1	.....
Pointe Coupee	1	.....	....	1	.....
Port Barre	10	6	....	4	1,635
Potash	3	2	....	1	970
Quarentine Bay	12	12	....	....	14,175
Raceland	4	3	....	1	928
Roanoke	2	.....	....	2	.....
South Houma	3	1	....	2	615
South Roanoke	5	4	....	1	824
Sorrento	3	1	....	2	245
Starks	5	2	....	3	150
St. Martinville	1	.....	....	1	.....
Sulphur	15	7	1	7	1,310
Sweet Lake	1	1	....	....	184
Tepetate	1	1	....	....	145
Timbalier Bay	3	3	....	....	645
Valentine	9	6	....	3	1,325
Venice	7	6	....	1	1,083
Ville Platte	52	51	....	1	14,347
Vinton	6	2	....	4	120
Welsh	2	.....	....	2	.....
West Baton Rouge	1	.....	....	1	.....
West Gueydan	6	3	....	3	1,351
West Hackberry	11	6	1	4	2,259
West Lake Verrett	4	1	....	3	206
White Castle	3	3	....	....	1,279
Woodlawn	8	7	....	1	2,045
*Wildcats by Parishes					
Acadia	5	.....	....	5	.....
Allen (North Elton)	1	1	....	....	20
Assumption	2	.....	....	2	.....
Avoyelles	3	.....	....	3	.....
Beauregard	3	.....	....	3	.....
Calcasieu (Perkins)	5	.....	1	4	.....
Cameron (Grand Lake)	6	1	....	5	384
Evangeline	1	.....	....	1	.....
Iberia (Vermilion Bay)	3	1	....	2	300
Iberville	6	.....	....	6	.....
Jefferson (Barataria)	3	1	....	2	888
Jefferson Davis	4	.....	....	4	.....
Lafayette	1	.....	....	1	.....
Lafourche	2	.....	....	2	.....
Livingston	2	.....	....	2	.....
Orleans	3	.....	....	3	.....
Plaquemines	3	.....	....	3	.....
Rapides	1	.....	....	1	.....
St. Bernard	1	.....	....	1	.....
St. Charles (Paradis)	1	1	....	....	120
St. James (La Pice)	1	1	....	....	48
St. John (La Place)	1	1	....	....	131
St. Landry	1	.....	....	1	.....
St. Mary	4	.....	....	4	.....
St. Martin (Henderson and Happy-town)	10	2	1	7	624
St. Tammany	2	.....	....	2	.....
Terrebonne	3	.....	....	3	.....
Vermilion	3	.....	....	3	.....

(Continued in next column)

Louisiana Gulf Coast—Continued

Parish or Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
*Wildcats by Parishes					
Vernon	3	.....	....	3	.....
West Feliciana	1	.....	....	1	.....
Total, 1939	825	553	14	258	165,540
Total, 1938	564	336	13	215	137,493

* Fields discovered are shown in parentheses.

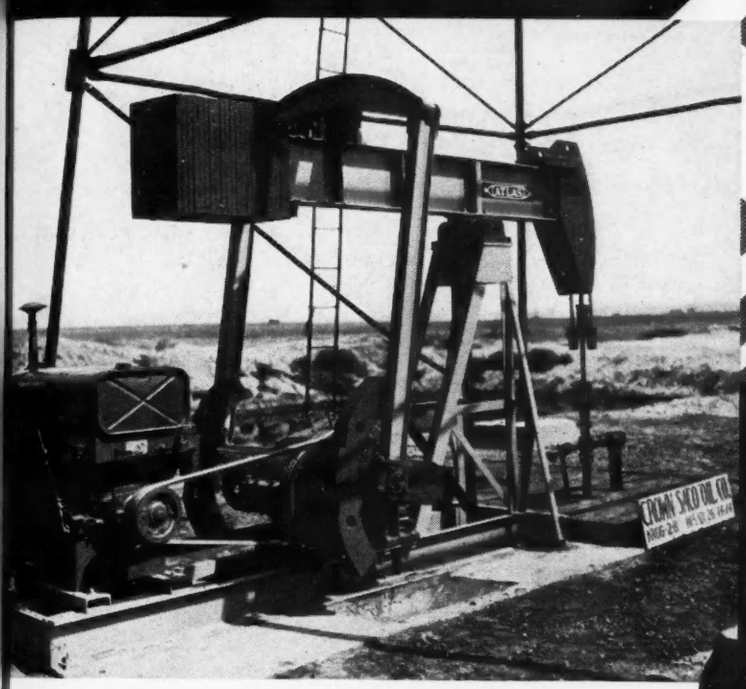
Michigan

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allegan	289	179	....	110	42,550
Aranac	31	12	15	4	800
Barry	23	.....	....	23	.....
Bay	3	1	....	2	60
Berrien	9	.....	....	9	.....
Branch	2	.....	....	2	.....
Calhoun	3	.....	....	3	.....
Cass	7	1	....	6	12
Clare	134	95	18	21	99,683
Clinton	4	.....	....	4	.....
Crawford	1	.....	....	1	.....
Emmot	1	.....	....	1	.....
Gladwin	11	4	....	7	70
Gratiot	7	.....	2	5	.....
Huron	1	.....	....	1	.....
Ingham	1	.....	....	1	.....
Ionia	1	.....	....	1	.....
Isabella	44	29	....	15	7,616
Jackson	1	.....	....	1	.....
Kalamazoo	16	.....	....	16	.....
Kent	289	243	2	44	116,682
La Peer	1	.....	....	1	.....
Leelanau	2	.....	....	2	.....
Macomb	1	.....	....	1	.....
Macosta	7	.....	2	5	.....
Mainstee	1	.....	....	1	.....
Midland	11	2	....	9	400
Missaukee	5	.....	....	5	400
Monroe	9	6	1	2	1,360
Montcalm	26	.....	14	12	.....
Muskegon	6	.....	2	4	.....
Newaygo	3	.....	....	3	.....
Ocena	3	.....	....	3	.....
Ogemaw	11	8	....	3	264
Osceola	3	.....	....	3	.....
Ottawa	82	27	1	54	14,700
Roscommon	3	.....	....	3	.....
Saginaw	2	.....	....	2	.....
St. Clair	6	.....	....	6	.....
Michigan	3	.....	....	3	.....
Tuscola	5	3	....	2	440
Van Buren	387	229	1	157	87,515
Total, 1939	1,455	839	58	558	372,552
Total, 1938	999	588	25	386	192,081

Mississippi

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Claiborne	1	.....	....	1	.....
Hinds:					
Flora	1	.....	....	1	.....
Wildcats	3	.....	....	3	.....
Humphreys	1	.....	....	1	.....
Lafayette	1	.....	....	1	.....
Lowndes	1	.....	....	1	.....
Madison	1	.....	....	1	.....
Rankin:					
Jackson	1	.....	....	1	.....
Wilkinson	1	.....	....	1	.....
Yalobousha	1	.....	....	1	.....
Yazoo:					
Satartia (Tinsley)	7	7	....	....	3,768
Wildcats	1	.....	....	1	.....
Total, 1939	20	7	....	13	3,768
Total, 1938	21	.....	6	15	.....

Look Beyond the PRICE TAG



No. 907 ATLAS TWIN CRANK UNIT (11.4 H.P.) with Combination Beam and Rotary Counterbalance.

- **EQUAL PRICE** does not mean equal quality. Before you buy, check the construction details of Atlas Pumping Units and see for yourself that they can't be beat at any price.
- **HEAVIER REDUCERS** for a given capacity rating will be found on Atlas Units. Some of them as much as 50% heavier. Designed to keep reducer replacements off your cost sheets.
- **RIGID FRAMES** are the rule on Atlas Units. Compare the bracing. They are built to stay put and operate without vibration.
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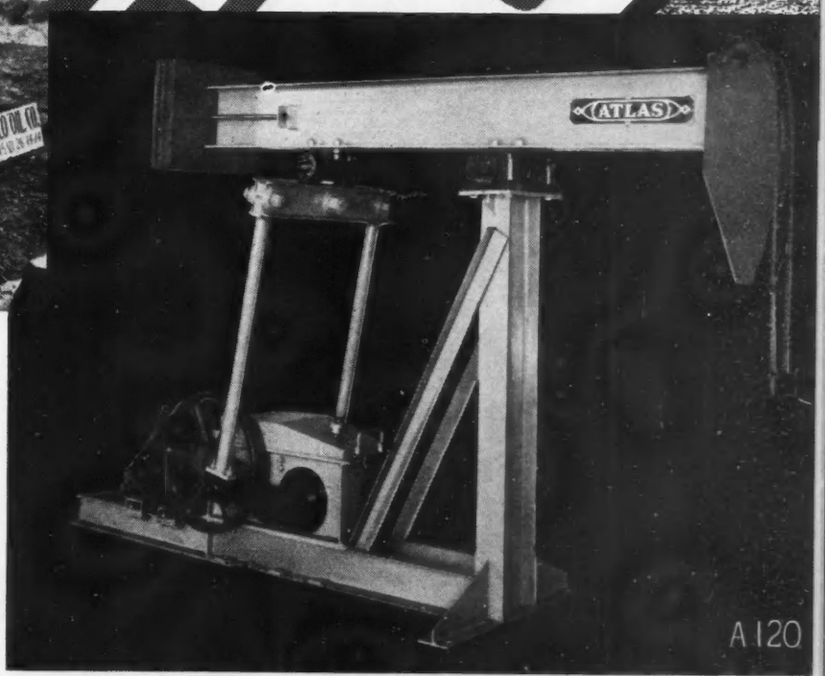
- **EQUALIZER BEAMS** are necessary for long trouble-free service. You get them on Atlas Units.
- **ROLLER BEARING WRIST PINS** are used to eliminate the most frequent cause of unit trouble. Why not have them on your units?
- **COMPETENT FIELD ENGINEERS** are available at all Atlas Store points. Let them help you reduce your costs as well as your initial investment.



No. 708 ATLAS TWIN CRANK PUMPING UNIT (6 H.P.) for Shallow Wells.

BRIEF SPECIFICATIONS

UNIT NO.	401	608	708	907	1208
Reducer Type	Chain	Chain	Chain	Gear	Gear
Beam Rating	4000 lb.	7416 lb.	7416 lb.	10100 lb.	13000 lb.
HP Rating	6.00	9.65	6.00	11.40	19.78
Peak Torque	30000	47768	30000	56500	131733
Maximum Stroke	24"	33"	32"	36"	54"

We Manufacture a Complete Line of Pumping Units from 6 to 65 hp. Capacity.

ATLAS SUPPLY CO.

MUSKOGEE, OKLA., U.S.A.
Branches in principal oil fields

Subsidiary of
WHEELING STEEL CORPORATION

wells dropped from 1522 to 1291, or 15.3 percent, while a drop of 118 to 453 represented a 20.6 percent decline in the Texas Panhandle. West Texas completions dropped 245, or 10.7 percent, to 2290.

Other areas of the Mid-Continent, with the exception of Arkansas, also declined. Oklahoma operators completed 2081 wells, just 6 wells under the previous year; Kansas had 1450 completions or 11.8 percent under a year ago, and North Louisiana had 351 completions, or 30.9 percent under 1938. A slight increase, amounting to 5 wells, was registered in Arkansas, bringing the state's total to 229.

Wells Drilled in the United States in 1939, by Counties and Fields—(Continued)

Missouri*

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Adair	3	.....	....	3	.....
Bates	2	.....	1	1	.....
Carroll	4	.....	....	4	.....
Cass	9	4	2	3	40
Chariton	1	.....	....	1	.....
Clay	7	.....	2	5	.....
Clinton	2	.....	1	1	.....
Daviess	1	.....	....	1	.....
Harrison	1	.....	....	1	.....
Hickory	1	.....	....	1	.....
Holt	1	.....	....	1	.....
Jackson	28	.....	6	22	.....
Johnson	3	.....	....	3	.....
Livingston	3	.....	....	3	.....
Platte	9	.....	3	6	.....
Putman	2	.....	....	2	.....
Ray	2	.....	....	2	.....
St. Charles	1	.....	....	1	.....
Schuyler	1	.....	....	1	.....
Sullivan	1	.....	....	1	.....
Total, 1939	82	4	15	63	40
Total, 1938	164	15	60	89	113

Montana

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Blaine:					
Bowes	1	.....	1	....	.....
Carbon	2	.....	....	2	.....
Fallon	9	7	1	1	332
Glacier:					
Cut Bank	69	54	4	11	6,603
Liberty:					
Whitlash	1	.....	1	....	.....
Meagher:					
Moss Agate	1	.....	....	1	.....
Pondera:					
Penderoy Dome	2	1	....	1	120
Teton:					
West Ponders	1	.....	1	....	.....
Toole:					
Kevin-Sunburst	63	53	1	9	5,809
Unclassified	3	1	....	2	50
Total, 1939	152	116	9	27	12,914
Total, 1938	79	52	12	15	8,868

Nebraska

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Hitchcock	1	.....	....	1	.....
Richardson (Fall City)	1	1	....	....	150
Total, 1939	2	1	....	1	150
Total, 1938	1	.....	....	1	.....

New Mexico

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Chaves	8	2	....	6	17
Eddy:					
Unclassified	152	109	2	41	41,353
Guadalupe	1	.....	....	1	.....
Harding	3	.....	....	3	.....
Lea:					
Cooper	3	3	....	....	2,064

(Continued in next column)

New Mexico—Continued

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
East Jal-Langlie	1	1	....	....	640
Eunice	45	44	....	1	41,822
Halfway	4	1	....	3	100
Hardy	35	35	....	....	9,605
Langlie	37	33	3	1	17,055
Lovington	32	29	1	2	11,770
Lynn	7	6	....	1	4,867
Maljamar	12	11	1	....	2,143
Mattix	61	61	....	....	29,893
Monument	19	18	....	1	10,125
Penrose	37	36	....	1	13,471
Rhoades	2	....	2	....	.....
Skelly	4	3	....	1	675
Vacuum	148	141	....	7	85,590
West Eunice	1	1	....	....	157
Wildcats	9	4	....	5	1,065
McKinley	3	2	....	1	356
Mora	3	.....	2	1	.....
Quay	3	.....	....	3	.....
Rio Arriba	1	.....	....	1	.....
Roosevelt	1	.....	....	1	.....
San Juan:					
Rattlesnake	15	11	....	4	525
Wildcats	5	2	....	3	8
Torrance	1	.....	1	....	.....
Valencia	1	.....	....	1	.....
Total, 1939	654	553	12	89	273,301
Total, 1938	534	460	15	59	233,750

New York

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allegany	385	376	7	2	2,600
Allegany (water-input)	252	252	....	....	.....
New York-Pennsylvania Gas Field	4	.....	3	1	.....
Steuben	31	4	13	14	10
Total, 1939	672	632	23	17	2,610
Total, 1938	692	621	57	14	1,471

Ohio

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Adams	1	.....	....	1	.....
Allen	1	.....	....	1	.....
Ashland	15	7	3	5	45
Ashtabula	1	1	....	....	30
Athens	103	25	57	21	242
Augulaise	1	.....	....	1	.....
Belmont	2	.....	....	2	.....
Columbiana	7	1	....	6	1
Coshocton	16	11	3	2	637
Cuyahoga	33	14	14	5	40
Fairfield	14	5	7	2	125
Gallia	5	.....	....	5	.....
Geauga	1	.....	....	1	.....
Guernsey	45	2	24	19	5
Hancock	2	.....	....	2	.....
Harrison	2	1	....	1	5
Henry	2	1	1	....	15
Hocking	12	5	3	4	125
Holmes	14	.....	10	4	.....
Huron	1	.....	....	1	.....
Jackson	3	.....	2	1	.....
Jefferson	4	2	....	2	12
Knox	56	7	28	21	169
Lake	1	.....	....	1	.....
Lawrence	10	.....	4	6	.....
Licking	135	29	76	30	722
Logan	2	.....	1	1	.....
Lorain	14	3	6	5	112

(Continued in next column)

Ohio—Continued

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Medina	96	67	13	16	806
Meigs	34	1	25	8	3
Monroe	35	10	18	7	47
Morgan	15	6	5	4	40
Muskingum	39	13	16	10	183
Noble	55	3	41	11	5
Perry	44	10	19	15	278
Putnam	3	2	1	....	10
Richland	1	.....	....	1	.....
Seneca	5	1	1	3	5
Stark	29	.....	26	3	.....
Summit	5	.....	4	1	.....
Tuscarawas	9	.....	5	4	.....
Washington	105	29	44	32	194
Wayne	7	3	3	1	15
Wood	2	.....	....	2	.....
Wyandot	4	1	....	3	10
Total, 1939	991	262	458	271	3,881
Total, 1938	923	268	383	272	5,668

Oklahoma

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Alfalfa	1	.....	....	1	.....
Atoka	2	.....	....	2	.....
Beckham	7	.....	5	2	.....
Caddo	59	41	10	8	52,047
Cherokee	2	.....	....	2	.....
Carter	52	38	2	12	1,848
Choctaw	1	.....	....	1	.....
Cleveland	8	3	....	5	278
Coal	4	1	....	3	3,745
Comanche	41	21	2	18	113
Cotton	10	.....	....	10	.....
Creek	210	122	19	69	11,220
Ellis	1	.....	....	1	.....
Garfield	19	8	1	10	406
Garvin	2	.....	1	1	.....
Grady	23	10	2	11	437
Grant	2	.....	....	2	.....
Greer	3	.....	....	3	.....
Harmon	1	.....	....	1	.....
Harper	1	.....	....	1	.....
Hughes	25	5	5	15	236
Jackson	81	63	1	17	4,152
Jefferson	8	3	2	3	33
Kay	17	.....	1	16	.....
Kingfisher	1	.....	....	1	.....
Kiowa	15	4	....	11	3,286
Le Flore	1	.....	....	1	.....
Lincoln	85	67	3	15	10,507
Logan	16	6	4	6	1,768
Love	2	.....	....	2	.....
Marshall	4	1	....	3	71
Mayes	1	.....	....	1	.....
McIntosh	4	.....	2	2	.....
Murray	4	1	....	3	10
Muskogee	46	13	4	29	497
Noble	15	11	1	3	12,188
Okfuskee	54	28	5	21	3,281
Oklahoma	37	27	1	9	4,679
Okmulgee	116	50	18	48	558
Osage	73	34	3	36	4,272
Pawnee	47	24	1	22	2,399
Payne	56	42	3	11	141,745
Pittsburg	4	.....	1	3	.....
Pontotoc	157	109	8	40	27,047
Pottawatomie	346	287	2	57	71,788
Seminole	241	151	8	82	28,988
Sequoyah	2	.....	....	2	.....
Stephens	87	51	12	24	2,130
Tillman	12	7	....	5	1,118
Tulsa	49	9	14	26	286
Wagoner	25	3	7	15	76
Washita	1	.....	....	1	.....
Total, 1939	2,081	1,240	148	693	391,209
Total, 1938	2,087	1,303	145	639	342,164

* Details of 1939 drilling furnished by Missouri Geological Survey through Dr. H. A. Buehler, State Geologist.

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SYSTEM OF WELL CONTROL*

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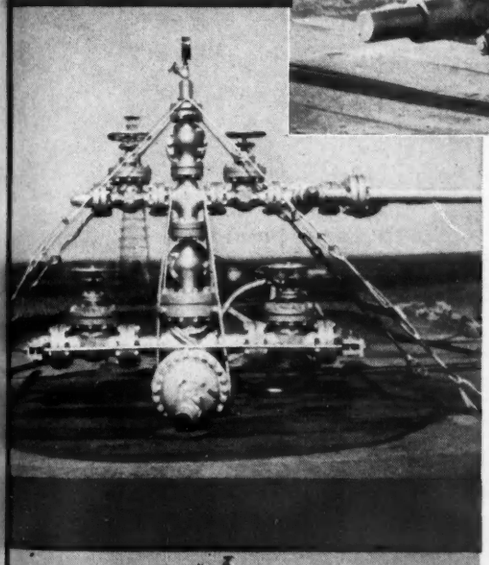

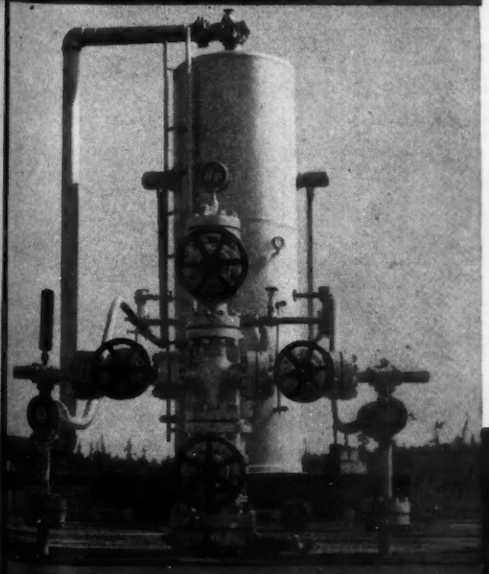

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Join the hundreds of operators who have discovered in Gray-Kerotest Well Control a system that banishes for all time the many annoying troubles and delays attendant to profitable drilling.

This system safeguards your operations from the time the surface pipe is set until the well is standing cemented, complete with a Kerotest Christmas Tree Assembly that is "tailor-made" to the individual requirements of your well.

Engineered, designed, manufactured and assembled complete in one plant, every component part is checked to precision tolerances and thoroughly tested to ultimate pressure.

As a result, every single part dovetails together in perfect harmony—every unit coordinates to assure you utmost flexibility, safety and economy.

It's the crowning achievement of modern oil well drilling—a system you can't afford to overlook. Better get all the facts today.

KEROTEST

KEROTEST MANUFACTURING CO.

PITTSBURGH, PA.

A sharp increase, amounting to 261 wells or 46.1 percent, was registered in South Louisiana, bringing the state's 1939 total to 1176 wells or 9.6 percent above a year ago.

Michigan experienced a 45.3 percent increase in completed wells, raising the state's total from 999 in 1938 to 1455 in 1939.

California continued to decline, dropping in the past year from

Wells Drilled in the United States in 1939, by Counties and Fields—(Continued)

Pennsylvania

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allegheny	22	4	14	4	50
Armstrong	26	.....	20	6	.....
Beaver	4	.....	....	4	.....
[1]Bradford (Oil)	1,011	1,009	1	1	1,723
[2]Bradford (water-input)	1,099	1,099	....	....	.....
Butler-Armstrong	64	47	4	13	152
Butler	3	3	....	....	5
Clarion	13	.....	12	1	.....
Fayette	13	.....	11	2	.....
Greene	30	5	24	1	70
Indiana	31	.....	18	13	.....
McKean	1	.....	....	1	.....
Middle District (Clarion-Venango)	112	92	8	12	130
Middle District (water-input)	7	7	....	....	.....
N. Y. Penn. Gas Field	50	.....	38	12	.....
Potter	25	1	17	7	7
Washington	31	10	19	2	69
Westmoreland	5	.....	4	1	.....
Total, 1939	2,547	2,277	190	80	2,206
Total, 1938	[3]2,583	[3]2,380	118	85	5,318

Tennessee

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Clay	18	7	1	10	840
Dyer	1	.....	....	1	.....
Fentress	3	.....	....	3	.....
Jackson	2	.....	....	2	.....
Lauderdale	1	.....	....	1	.....
Overton	3	.....	....	3	.....
Pickett	5	.....	....	5	.....
Total, 1939	33	7	1	25	840
Total, 1938	2	1	1	....	240

Texas Summary

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
E. Texas Field	425	417	....	8	1,483,646
E. Texas, outside E. Texas Field	303	130	32	141	41,947
North	1,714	1,065	9	640	643,525
South	2,710	1,771	79	860	667,429
Gulf Coast	1,291	980	48	263	297,089
Panhandle	453	347	82	24	126,175
West	2,045	1,796	4	245	1,453,673
West Central	495	194	23	278	87,743
Total, 1939	9,436	6,700	277	2,459	4,801,227
Total, 1938	12,184	9,149	369	2,666	12,925,511

East Texas Field

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Joiner Area	114	111	....	3	301,953
Kilgore Area	167	165	....	2	512,093
Longview Area	144	141	....	3	669,600
Total, 1939	425	417	....	8	1,483,646
Total, 1938	1,806	1,765	....	41	8,790,884

Eastern Texas Outside East Texas Field

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Anderson:					
Boggy Creek	1	.....	....	1	.....
Cayuga	8	2	5	1	400
Long Lake	24	15	7	2	4,760
Wildcats	3	.....	....	3	.....
Angelina	7	4	....	3	13
Camp	2	.....	....	2	.....
Cass:					
Rodessa	2	1	....	1	206
Cherokee	3	.....	....	3	.....
Dallas	1	.....	....	1	.....
Ellis	3	.....	....	3	.....
Falls	6	1	....	5	33
Franklin:					
Talco	23	22	....	1	5,886
Freestone:					
Cayuga	8	5	3	....	5,223
Wildcats	7	.....	....	7	.....
Harrison:					
Waskom	3	1	2	....	6
Wildcat	1	.....	1	....	.....
Henderson:					
Flag Lake	8	4	....	4	459
Opelika	2	1	....	1	436
Mabank	1	1	....	....	320
Wildcats	6	1	....	5	70
Hill	2	.....	....	2	.....
Hopkins	1	.....	....	1	.....
Houston:					
Grapeland	2	.....	2	....	.....
Kittrell	2	1	....	1	167
Navarro Crossing	15	14	1	....	1,611
Wildcats	7	1	....	6	66
Hunt	4	.....	....	4	.....
Kaufman	10	.....	....	10	.....
Leon:					
Buffalo	2	.....	1	1	.....
Long Lake	2	1	1	....	79
Navarro Crossing	6	1	2	3	108
Wildcat	1	.....	....	1	.....
Limestone	14	.....	....	14	.....
Marion:					
Pine Island	5	4	....	1	149
Rodessa	30	26	4	....	14,642
Wildcat	1	1	....	....	25
McLennan	8	.....	....	8	.....
Morris	1	.....	....	1	.....
Nacogdoches	2	.....	....	2	.....
Navarro	12	4	1	7	1,410
Panola	3	.....	1	2	.....
Rains	1	.....	....	1	.....
Red River	3	.....	....	3	.....
Rusk	5	.....	....	5	.....
San Augustine	1	.....	....	1	.....
Shelby:					
Joaquin	3	.....	1	2	.....
Smith	7	.....	....	7	.....
Titus:					
Talco	24	19	....	5	5,878
Trinity	4	.....	....	4	.....
Upshur	3	.....	....	3	.....
Van Zandt	2	.....	....	2	.....
Wood	1	.....	....	1	.....
Total, 1939	303	130	32	141	41,947
Total, 1938	487	306	35	146	162,954

North Texas

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Archer:					
Hull-Silk	77	76	....	1	82,562
Jackson-Canyon	4	3	....	1	282
K-M-A	28	27	....	1	17,821
Ford-Sykes	5	4	....	1	975
Miscellaneous	159	93	....	66	9,196
Wildcats	62	11	....	51	2,500
Baylor	16	6	....	10	801

(Continued in next column)

North Texas—Continued

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Clay:					
Worsham	2	2	....	....	605
Miscellaneous	119	65	....	54	6,686
Wildcats	29	5	....	24	3,542
Collin	1	.....	....	1	.....
Cooke:					
Miscellaneous	111	79	1	31	12,627
Walnut Bend-Best	24	24	....	....	176,668
Cottle	1	.....	....	1	.....
Denton	4	.....	....	4	.....
Foard:					
Johnson	1	1	....	....	72
Wildcats	1	.....	....	1	.....
Grayson:					
Collinsville	1	.....	....	1	.....
Wildcats	11	1	....	10	6
Hardeman	2	.....	....	2	.....
Haskell	7	.....	....	7	.....
Jack:					
Miscellaneous	95	53	....	42	11,242
Wildcats	28	5	....	23	1,739
Montague	53	36	1	16	13,638
Motley	1	.....	....	1	.....
Throckmorton	33	10	1	22	118
Throckmorton, Wildcats	2	1	....	1	26
Wichita:					
Jackson-Canyon	5	5	....	....	712
K-M-A	310	300	....	10	241,739
Miscellaneous	202	111	....	91	1,502
Wildcats	19	.....	....	19	.....
Wilbarger	65	44	....	21	25,849
Wise	4	.....	....	4	.....
Young:					
Unclassified	226	102	5	119	31,347
Wildcats	6	1	1	4	1,250
Total, 1939	1,714	1,065	9	640	643,525
Total, 1938	2,398	1,636	17	745	798,980

South Texas Summary

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Corpus Christi	1,326	1,002	45	279	542,601
Laredo	1,001	604	28	369	111,441
San Antonio	383	165	6	212	13,387
Total, 1939	2,710	1,771	79	860	667,429
Total, 1938	2,744	1,751	128	865	725,443

South Texas: Corpus Christi Area

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Aransas	28	27	....	1	.....
Bee	10	2	....	8	37
Brooks	44	34	....	10	14,095
Calhoun	23	17	1	5	9,015
Cameron	4	.....	....	4	.....
Colorado	4	2	....	2	405
De Witt	3	.....	....	3	.....
Goliad:					
Weser	3	1	1	1	28
Wildcats	6	.....	....	6	.....
Hidalgo:					
McAllen	1	1	....	....	150
Samfordyce	35	24	4	7	4,630
Wildcats	4	1	....	3	106
Jackson	113	91	1	21	49,847
Jim Hogg	1	1	....	....	135
Jim Wells:					
Alice	99	82	3	14	37,803
Armagosa	2	.....	....	2	.....
Reynolds	38	29	....	9	12,655
Unclassified	55	24	2	29	8,715

(Continued on next page)

[1] Data based on completions published currently in detail in The Oil Weekly; closely verified by The Producers Monthly, official organ of Bradford District Pennsylvania Oil Producers Association, which reported total of 1,015 oil wells completed in 1939, compared with 1,032 in 1938.

[2] Source of data: The Producers Monthly, official organ of Bradford District Pennsylvania Oil Producers Association. Detailed lists of completions of water-intake wells as published regularly in The Oil Weekly were incomplete, having included only 238 such wells in 1939.

[3] Pennsylvania figures for 1938 as published year ago revised upward to embody Bradford field data by The Producers Monthly, official organ of Bradford District Pennsylvania Oil Producers Association, which reported total of 1,032 oil wells and 1,119 water-intake wells completed in 1938.

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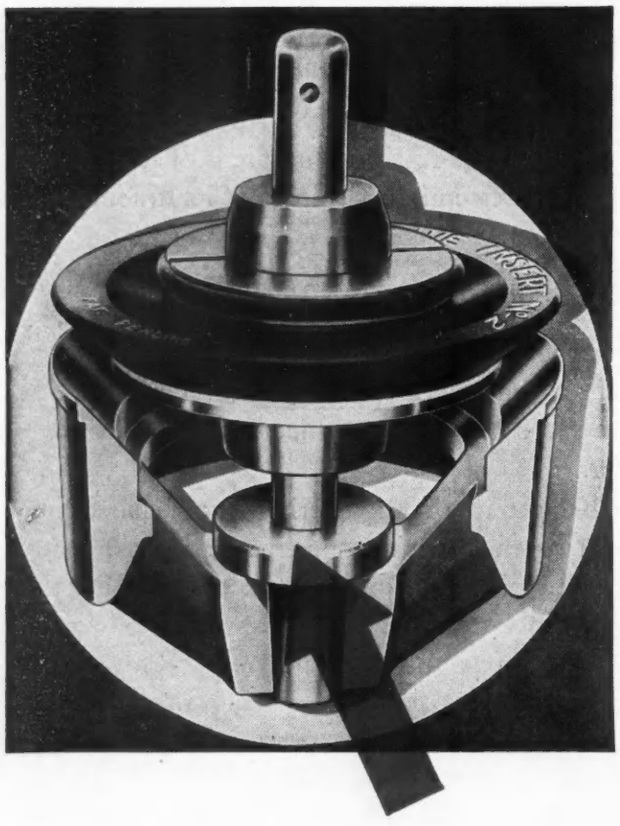

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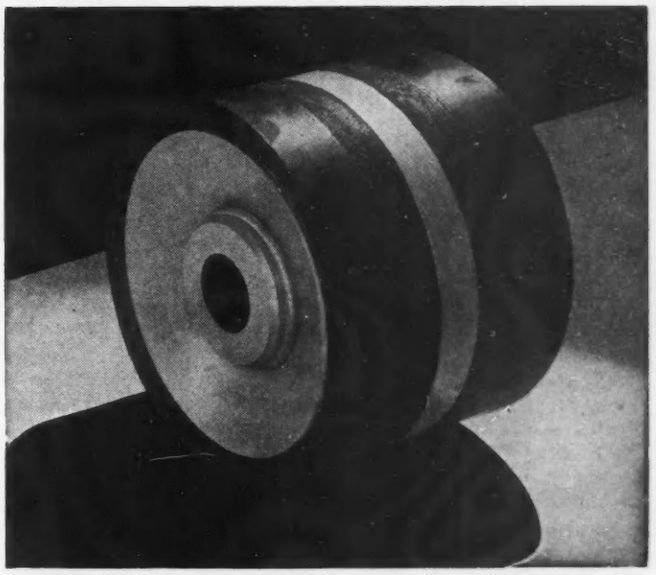

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1270 to 1037. Completions had dropped from 1470 in 1937 to last year's figure.

Discovery of Mississippi's first commercial oil field came too late in 1939 to materially influence completions in that state, and the year closed with only 20 completed wells compared to 21 for the previous year.

Appreciable gains were registered in the Rocky Mountain area. Montana completions climbed 92.5 percent, from 79 wells in 1938 to 152 in 1939; Wyoming completions advanced 18.2 percent from 108 to 129, and Colorado completions jumped 72.5 percent from 11 to 19. Utah completions declined from 4 to 2.

Nebraska's 2 completed wells were one above 1938, and that one was an oil well that provided the state's first pool.

Operators completed 3 wells in Arizona last year, a state that was without completions in 1938. Alabama had one completion in both 1938 and 1939. One test was drilled in Georgia in 1939, compared to none in 1938, while North Dakota, which had one test in 1938, was without a completion last year.

Wells Drilled in the United States in 1939, by Counties and Fields—(Continued)

South Texas: Corpus Christi Area Continued

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Karnes	3	.....	....	3	.....
Kennedy	3	.....	....	3	.....
Kleberg	5	1	....	4	150
Lavaca	2	.....	....	2	.....
Live Oak:					
Ezsell	1	.....	....	1	.....
Oakville	10	6	2	2	606
White Creek	12	6	1	5	618
Wildcats	25	1	1	23	102
Nueces:					
Agua Dulce	38	27	5	6	2,966
Clara Driscoll	51	41	2	8	15,877
Flour Bluff	3	3	....	....	1,850
Luby	49	46	....	3	20,250
Minnie Bock	22	20	....	2	6,767
Richard King	20	17	1	2	8,395
Riverside	8	2	....	6	400
Saxet	40	30	5	5	10,550
Stratton	2	2	....	....	500
Turkey Creek	9	6	1	2	2,500
Wildcats	25	6	....	19	818
Refugio:					
Fox	3	2	....	1	785
La Rosa	66	56	4	6	28,443
Melon Creek	9	8	....	1	5,825
Refugio	13	13	....	....	6,715
Tomoconnor	45	44	....	1	70,575
Woodsboro	2	.....	1	1	.....
Wildcats	8	.....	....	8	.....
San Patricio:					
Angelita	2	2	....	....	67
McCampbell	119	114	....	5	112,975
Plymouth	17	15	1	1	8,632
East White Point and White Point	139	131	2	6	71,019
Wildcats	13	2	1	10	496
Starr:					
South Ricaby	1	1	....	....	75
Santo Domingo	1	.....	....	1	.....
Victoria:					
El Placedo	6	6	....	....	2,165
Heyser	24	22	1	1	10,350
Keeran	8	7	....	1	4,450
McFaddin	31	28	1	2	10,034
Wildcats	16	1	4	11	25
Willacy	2	.....	....	2	.....
Total, 1939	1,326	1,002	45	279	542,601
Total, 1938	1,216	853	68	295	565,653

South Texas: Laredo Area

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Calhoun	1	.....	....	1	.....
Cameron	1	.....	....	1	.....
DeWitt	2	.....	....	2	.....
Duval	488	342	23	123	79,283
Jim Hogg	43	26	....	17	7,888
Karnes	3	.....	....	3	.....
La Salle	7	.....	....	7	.....
Lavaca	1	.....	....	1	.....
Live Oak	5	4	....	1	315
McMullen	120	60	....	60	6,410
Starr	92	30	1	61	6,220
Travis	1	.....	....	1	.....
Webb	108	51	1	56	3,780
Zapata	129	91	3	35	7,545
Total, 1939	1,001	604	28	369	111,441
Total, 1938	1,057	667	52	338	140,096

South Texas: San Antonio Area

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Atascosa	4	.....	....	4	.....
Bastrop	19	6	....	13	312
Bexar	50	19	2	29	588
Blanco	5	.....	....	5	.....
Caldwell	76	56	....	20	4,710
Comal	2	.....	....	2	.....
Edwards	3	2	....	1	11
Frio	3	.....	....	3	.....
Gonzales	7	.....	....	7	.....
Guadalupe	85	52	....	33	7,089
Hays	2	.....	....	2	.....
Kendall	7	.....	....	7	.....
Kerr	3	.....	....	3	.....
Kimble	4	1	....	3	3
Kinney	1	.....	....	1	.....
Lee	2	1	....	1	5
Maverick	3	.....	....	3	.....
Medina	35	12	3	20	84
Milam	19	8	....	11	22
Real	1	.....	....	1	.....
Schleicher	4	1	1	2	500
Travis	20	3	....	17	17
Val Verde	1	1	....	....	3
Williamson	21	3	....	18	43
Wilson	1	.....	....	1	.....
Zavala	5	.....	....	5	.....
Total, 1939	383	165	6	212	13,387
Total 1938	471	231	8	232	19,694

Texas Gulf Coast

Field or County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Fields:					
Ace	4	4	....	....	1,180
Aldine	4	1	....	3	24
Allen	1	.....	....	1	.....
Amelia	1	1	....	....	280
Anahuac	40	37	2	1	17,451
Bammel	9	.....	4	5	.....
Barbers Hill	8	7	....	1	2,013
Batson	6	3	....	3	522
Bay City	1	1	....	....	469
Big Creek	3	.....	....	3	.....
Blue Ridge	4	4	....	....	1,125
Boling	11	7	2	2	1,949
Brenham	1	1	....	....	10
Bryan Mound	2	.....	....	2	.....
Call	1	.....	....	1	.....
Caplen	3	3	....	....	1,172
Cedar Bayou	2	1	....	1	305
Cedar Point	8	4	....	4	2,006
Clam Lake	7	5	....	2	1,033
Clear Lake	30	18	5	7	4,535
Clinton	5	.....	3	2	.....
Collegeport	2	.....	2	....	.....
Conroe	2	1	....	1	663
Cotton Lake	5	5	....	....	1,068
Clodine	1	.....	....	1	.....
Damon Mound	3	1	....	2	24
Danbury	10	1	1	8	82
Dickinson	45	39	3	3	15,499
Esperson	10	8	1	1	4,599
Eureka	20	16	1	3	7,410
Fairbanks	153	144	2	7	22,380
Fannett	3	3	....	....	426
Friendswood	101	94	....	7	47,519
Garwood	1	1	....	....	25
Goose Creek	2	2	....	....	154
Greens Lake	1	.....	....	1	.....
Hankamer	4	3	....	1	747
Hardin	46	42	2	2	13,775
Hastings	69	61	1	7	31,512
High Island	5	2	....	3	468
Hitchcock	3	2	....	1	588
Hull	14	11	1	2	1,748
Humble	11	7	....	4	439
Joe's Lake	13	12	....	1	4,051

(Continued in next column)

Texas Gulf Coast—Continued

Field or County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Katy	2	.....	2	....	.....
Labelle	2	1	....	1	53
League City	23	20	....	3	5,896
Lochridge	3	3	....	....	527
Louise	17	11	....	6	2,133
Lovell Lake	35	30	....	5	5,319
McCrosky	1	1	....	....	175
Magnet	20	19	1	....	3,029
Manvel	9	7	1	1	2,081
Markham	7	5	....	2	991
Martha	6	3	....	3	692
Moss Bluff	4	.....	....	4	.....
Mykawa	3	.....	....	3	.....
Nome	1	1	....	....	213
North Dayton	1	1	....	....	40
North Markham	1	.....	....	1	.....
Old Ocean	22	20	....	2	5,973
Orange	28	26	1	1	5,978
Pickett Ridge	10	10	....	....	816
Pierce Junction	9	7	1	1	1,549
Port Neches	6	6	....	....	1,368
Sandy Point	1	.....	....	1	.....
Saratoga	3	1	....	2	15
Satsuma	6	2	1	3	772
Seabreeze	8	4	2	2	783
Segno	28	27	....	1	12,516
Silsbee	10	10	....	....	3,100
Sour Lake	3	2	....	1	191
South China	3	2	....	1	268
Sour Lake	1	1	....	....	98
South Bay City	5	5	....	....	1,000
South Cotton Lake	10	9	1	....	1,162
South Houston	4	2	....	2	408
South Liberty	2	1	....	1	30
Spindletop	11	7	....	4	900
Spurger		See Joe's Lake			
Thompson	56	45	1	10	22,023
Tomball	38	33	....	5	10,532
Turtle Bay	9	6	....	3	903
Van Vleck	6	6	....	....	1,587
Waller	1	.....	....	1	.....
West Beaumont	5	5	....	....	837
West Columbia	19	16	....	3	5,536
Withers	70	64	5	1	8,759
*Wildcats by Counties					
Austin	3	.....	....	3	.....
Brazoria (Anchor)	11	1	....	10	267
Brazos	1	.....	....	1	.....
Chambers (Cedar Bayou)	6	1	....	5	218
Colorado	3	.....	....	3	.....
Fort Bend (Rosenberg)	14	1	....	13	181
Galveston (Caplen)	4	1	....	3	307
Grimes	2	.....	....	2	.....
Harris (Aldine)	17	1	....	16	120
Jasper	1	.....	....	1	.....
Jefferson (South China)	6	1	....	5	202
Liberty (Martha)	1	1	....	....	241
Madison	1	.....	....	1	.....
Matagorda (Collegeport and Buttermilk Slough)	5	1	1	3	35
Montgomery	5	.....	.....	5	.....
Newton	1	.....	....	1	.....
Orange	2	.....	....	2	.....
Polk	1	.....	....	1	.....
San Jacinto	1	.....	....	1	.....
Trinity	4	.....	....	4	.....
Tyler	3	.....	....	3	.....
Walker	1	.....	....	1	.....
Waller	1	.....	1	....	.....
Wharton (Hilje)	13	1	....	12	14
Total, 1939	1,291	980	48	263	297,089
Total, 1938	1,522	1,187	47	288	487,111

* Fields discovered are shown in parentheses.

Wells Drilled in the United States in 1939, by Counties and Fields—(Continued)

Texas Panhandle

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Armstrong	2	.....	....	2	.....
Carson	65	48	14	3	20,331
Collingsworth	6	3	....	3	715
Donley	1	.....	....	1	.....
Gray	150	139	8	3	54,725
Hartley	1	.....	1	....	.....
Hutchinson	154	137	15	2	46,760
Lipscomb	1	.....	....	1	.....
Moore	43	2	39	2	189
Potter	5	.....	4	1	.....
Roberts	2	.....	....	2	.....
Wheeler	23	18	1	4	3,455
Total, 1939	453	347	82	24	126,175
Total, 1938	571	445	98	28	219,720

West Texas

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Andrews:					
Deep Rock	1	1	....	....	15
Emma	18	18	....	....	21,801
Fuhrman	17	17	....	....	17,102
Means	26	25	1	....	44,833
Parker	1	.....	....	1	.....
Wildcats	5	.....	....	5	.....
Borden	1	.....	....	1	.....
Brewster	2	.....	....	2	.....
Cochran:					
Dean	1	1	....	....	420
Duggan	7	7	....	....	3,554
Wildcats	2	.....	....	2	.....
Coke	1	.....	....	1	.....
Concho	3	.....	....	3	.....
Crane:					
Church and Fields	15	9	....	6	2,194
Dune	7	7	....	....	3,968
Gulf McElroy	16	16	....	....	15,416
Jordan	6	6	....	....	5,697
McCamey	9	9	....	....	3,055
McClintic	4	4	....	....	1,633
Sand Hills	19	17	....	2	41,834
Waddell	10	10	....	....	69,270
Wildcats	2	1	....	1	97
Crockett:					
Crockett	20	20	....	....	1,225
World	3	2	....	1	1,460
Wildcats	3	.....	....	3	.....
Crosby	1	.....	....	1	.....
Culberson	4	.....	....	4	.....
Dawson	2	.....	....	2	.....
Dickens	2	.....	....	2	.....
Ector:					
Foster	173	172	....	1	173,579
Goldsmith	162	160	....	2	156,353
Harper	11	11	....	....	13,202
Johnson	4	4	....	....	1,750
Jordan	44	44	....	....	54,991
Judkins	2	2	....	....	1,688
North Cowden	91	91	....	....	122,124
Wildcats	6	.....	....	6	.....
El Paso	1	.....	....	1	.....
Fisher:					
Royster	1	.....	....	1	.....
Wildcats	3	.....	....	3	.....
Gaines:					
Cedar Lake	1	1	....	....	983
Seminole	13	12	....	1	13,467
Wasson	31	31	....	....	27,377
Wildcats	5	2	....	3	2,192
Garza	1	1	....	....	150
Glasscock:					
Carter	1	.....	....	1	.....
Wildcats	3	.....	....	3	.....
Hockley:					
Slaughter	28	28	....	....	25,887
Howard	68	61	....	7	45,855
Irion	4	.....	....	4	.....
Jones:					
Unclassified	190	154	....	36	184,748
Wildcats	36	5	....	31	518
Kent	2	.....	....	2	.....
Loving:					
Mason	2	2	....	....	674
Wheat	3	2	....	1	958
Lynn	1	.....	....	1	.....
Martin	1	.....	....	1	.....
Mitchell	1	.....	....	1	.....
Nolan	1	.....	....	1	.....
Pecos:					
Apco	4	2	....	2	2,355
Lehn	10	10	....	....	1,229
Masterson	16	13	....	3	2,056
Netterville	3	3	....	....	51
Payton	43	42	....	1	8,646

(Continued in next column)

West Texas—Continued

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Pecos Valley	48	41	....	7	7,793
Shearer	19	16	....	3	4,694
Taylor Link	17	16	....	1	5,025
Tobarg	17	16	....	1	921
White-Baker	4	4	....	....	617
Yates	6	5	....	1	45,853
Wildcats	21	2	....	19	194
Presidio	2	.....	....	2	.....
Reagan	1	1	....	....	1,147
Reeves	4	1	....	3	16
Runnels	1	1	....	....	25
Schleicher	4	1	....	3	259
Scurry	25	22	....	3	3,076
Stonewall	5	2	....	3	435
Sutton	1	.....	....	1	.....
Taylor	20	8	2	10	1,892
Terrell	1	.....	....	1	.....
Tom Green	9	.....	....	9	.....
Upton:					
Gulf McElroy	10	10	....	....	7,567
McCamey	57	51	....	6	26,839
McClintic	1	1	....	....	60
Wildcats	2	.....	....	2	.....
Ward	162	152	....	10	65,239
Winkler:					
Bashara	1	1	....	....	1,996
Colby	1	1	....	....	48
Emperor	9	8	....	1	2,480
Halley	7	7	....	....	8,374
Henderson	11	10	....	1	8,835
Hendrick	8	8	....	....	1,409
Kermit (Sayre)	32	31	1	....	384
Keystone	30	29	....	1	8,677
Leck	1	1	....	....	80
Scarborough	10	10	....	....	3,295
Yoakum:					
Bennett	64	62	....	2	90,086
Wasson	256	254	....	2	266,536
Wildcats	4	1	....	3	162
Total, 1939	2,045	1,796	4	245	1,453,673
Total, 1938	2,290	1,921	16	353	1,724,445

West Central Texas

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Brown	77	24	3	50	1,011
Callahan	76	16	2	58	788
Coleman	32	13	2	17	4,846
Comanche	33	15	1	17	280
Eastland	30	6	2	22	163
Erath	2	.....	....	2	.....
Hood	2	.....	....	2	.....
Johnson	1	.....	....	1	.....
Hamilton	1	.....	....	1	.....
Lampasas	1	.....	....	1	.....
McCulloch	3	.....	1	2	.....
Mills	2	.....	....	2	.....
Palo Pinto	23	8	8	7	328
Parker	2	.....	....	2	.....
Shackleford	197	103	4	90	74,566
Stephens	13	9	....	4	5,761
Total, 1939	495	194	23	278	87,743
Total, 1938	366	138	28	200	15,974

Utah

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Washington	2	.....	....	2	.....
Total, 1939	2	.....	....	2	.....
Total, 1938	4	....		3	.....

West Virginia

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Barbour	1	.....	1	....	.....
Boone	12	.....	11	1	.....
Braxton	12	....	9	3	.....

(Continued in next column)

West Virginia—Continued

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Cabell	35	.....	34	1	.....
Calhoun	42	14	25	3	133
Chartiers	1	.....	1	....	.....
Clay	24	3	19	2	33
Doddridge	7	2	4	1	18
Fayette	4	.....	4	....	.....
Gilmer	55	7	40	8	47
Hancock	9	3	....	6	4
Harrison	3	.....	3	....	.....
Jackson	16	.....	16	....	.....
Kanawha	75	2	72	1	86
Lewis	5	1	....	4	3
Lincoln	44	3	40	1	35
Logan	6	.....	6	....	.....
Marion	10	1	7	2	10
Marshall	3	2	1	....	8
Mingo	7	1	6	....	10
Monongalia	6	2	4	....	2
Pleasant	35	17	10	8	309
Putnam	9	.....	8	1	.....
Raleigh	1	.....	1	....	.....
Ritchie	71	21	33	17	873
Roane	43	15	19	9	89
Rome	1	1	....	....	600
Tyler	10	3	....	7	6
Upshur	2	.....	2	....	.....
Wayne	28	3	22	3	10
Wetzel	21	1	16	4	3
Wirt	13	5	2	6	8
Wood	10	5	1	4	10
Total, 1939	621	112	417	92	2,297
Total, 1938	679	123	445	111	1,480

Wyoming

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Albany	1	.....	....	1	.....
Big Horn:					
Garland	4	4	....	....	5,200
Little Buffalo	1	.....	1	....	.....
Spence Dome	1	.....	....	1	.....
Zeisman	2	1	....	1	5,700
Carbon:					
Allen Lake	1	1	....	....	30
Big Medicine	1	.....	....	1	.....
Mahoney Dome	1	1	....	....	80
North Baxter	1	.....	....	1	.....
Unclassified	6	5	1	....	22,667
Converse	2	.....	....	2	.....
Fremont:					
Beaver Creek	1	1	....	....	13
Big Sand Draw	1	.....	1	....	.....
Plunkett	1	1	....	....	1
Werts	1	.....	....	1	.....
Wildcat	1	.....	....	1	.....
Hot Springs:					
Hamilton Dome	1	1	....	....	330
Wildcat	1	1	....	....	73
Johnson:					
Billy Creek	1	.....	1	....	.....
Lincoln	1	.....	....	1	.....
Natrona:					
Cole Creek	2	1	....	1	500
South Casper	1	.....	....	1	.....
Niobrara:					
Lance Creek	46	43	2	1	58,812
Young Woman Creek	1	.....	....	1	.....
West Mule Creek	1	1	....	....	60
Park:					
Badger Basin	2	2	....	....	275
Elk Basin	1	.....	....	1	.....
Frannie	2	2	....	....	759
Little Buffalo	1	.....	1	....	.....
Oregon Basin	1	.....	1	....	.....
Unclassified	2	1	....	1	200
Sublette:					
Dry Piney	1	.....	....	1	.....
La Barge	6	6	....	....	276
Sweetwater:					
Lost Soldier	5	5	....	....	400
Middle Baxter	1	.....	1	....	.....
North Baxter	1	.....	1	....	.....
Weston:					
Dewey Dome	2	.....	....	2	.....
Osage	19	14	....	5	107
Unclassified	4	2	....	2	23
Total, 1939	129	93	10	26	95,506
Total, 1938	108	65	14	29	30,840

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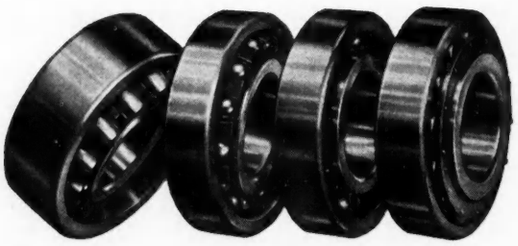

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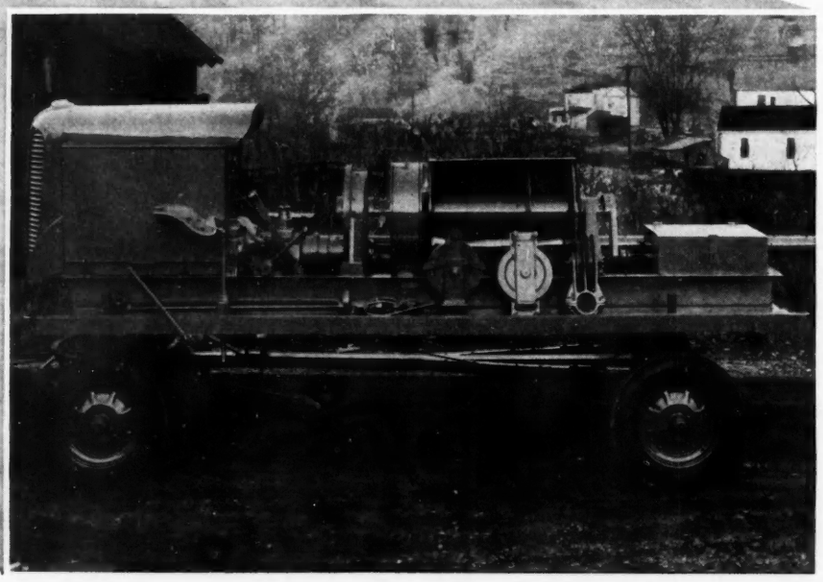

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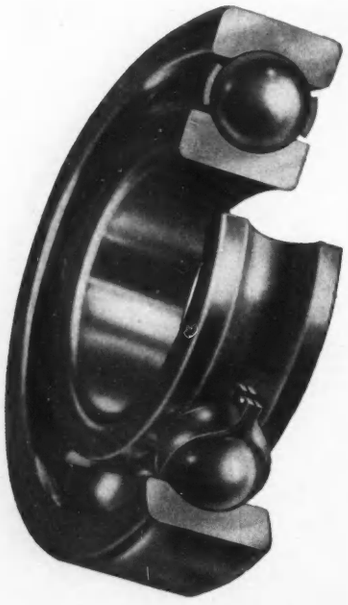

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U. S. Production Should Reach New Peak In 1940

UNITED STATES crude oil production very likely will continue to increase during 1940 and reach a new peak well above the all-time high established in 1937.

Output from the nations oil wells resumed in 1939 the gradual rising trend which has marked the history of the industry but which twice was interrupted by general economic disturbances during the past decade.

Demand to Gain

Increased oil consumption in 1939 brought a gain of 4.2 percent in production over the previous year in the face of a marked reduction in crude storage, the crude output of the country having totaled 1,265,261,000 barrels. Without the heavy withdrawals from crude stocks and allowing for a slight increase in stocks of refined products, demand in 1939 would have forced production by an additional 29,951,000 barrels, to an all-time high of 1,295,212,000 barrels. The latter figure is 16,052,000 barrels or 1.3 percent above the 1937 total of 1,279,160,000 barrels, which, however, continues to stand as the all-time production high.

Crude Stocks Favorable

Heavy withdrawals of crude from storage in recent years had lowered crude stocks to 229,127,000 barrels during the year, the lowest point in more than 17 years. This low point was reached last October 31, and only 8,615,000 barrels had been added to this record low storage by the end of the year.

Indicated increase in demand for petroleum, estimated at 5 percent, and little likelihood that further withdrawals will be made from crude storage during the year promise that 1940 production may reach or top the 1,350,000,000-barrel mark.

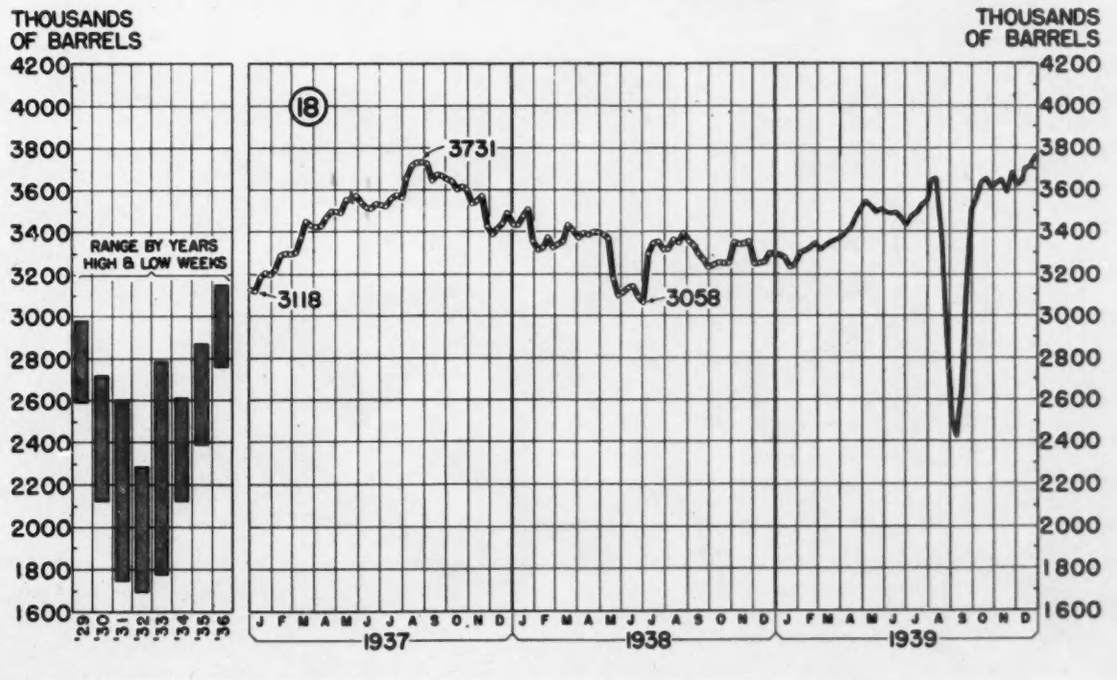
Withdrawals from crude stocks during the past year exceeded 35,000,000 barrels, while stocks of residual fuel oil dropped 9,000,000 barrels. Gains of 9,000,000 and 5,000,000 barrels were recorded, respectively, in gasoline stocks and distillate fuels.

The resulting net reduction of 30,000,000 barrels in stocks above ground is of greater importance when contrasted with 1938, when a reduction of 30,000,000 barrels in crude oil stocks was nullified by an increase of approximately the same amount in stocks of refined products.

Whereas 1938 saw curtailed demand for petroleum, occasioned by

Petroleum Production Trend in United States

(Four Weeks Average of Daily Production—Source: American Petroleum Institute)



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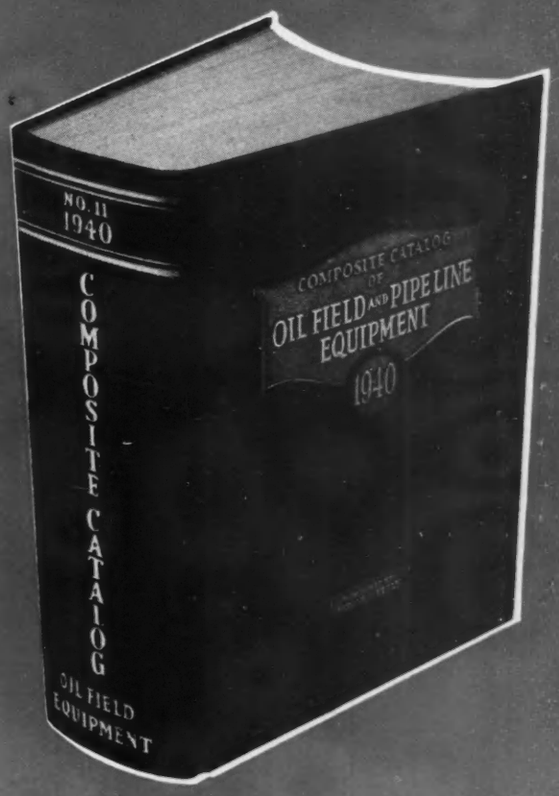

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COMPLETE ★ COMPACT ★ RELIABLE

a general business recession, resulting in a 5.2 percent drop in production from the previous year, approximately four-fifths of this loss was regained in oil actually produced during the year just closed.

Once before during the past decade the otherwise steady annual increase in United States production was interrupted. The business depression that set in late in 1929 saw a cut-back from 1,007,323,000 barrels in 1929 to 898,011,000 barrels in 1930, and the decline con-

United States Crude Oil Production, by States, by Years

Complete Production History of the Nation in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* and *Minerals Yearbook*, except where otherwise indicated in footnotes. Note: the detailed figures for 1918 and earlier years are from *Mineral Resources* for those years, rather than from later reports, which are in thousands of barrels.)

YEAR	Pennsylvania	New York	Ohio	West Virginia	California	Kentucky	Tennessee	Colorado	Indiana	Illinois	Kansas	Texas	Missouri	YEAR
1859	2,000													1859
1860	500,000		B	B		B	C							1860
1861	2,113,609		B	B		B	C							1861
1862	3,056,690		B	B		B	C							1862
1863	2,611,300		B	B		B	C							1863
1864	[A]2,116,000	[A]100	B	B		B	C							1864
1865	[A]2,397,792	[A]99,906	B	B		B	C							1865
1866	[A]3,453,792	[A]143,906	B	B		B	C							1866
1867	[A]3,213,408	[A]133,892	B	B		B	C							1867
1868	[A]3,500,272	[A]145,845	B	B		B	C							1868
1869	[A]4,046,400	[A]168,600	B	B		B	C							1869
1870	[A]5,050,315	[A]210,430	B	B		B	C							1870
1871	[A]4,997,025	[A]208,209	B	B		B	C							1871
1872	[A]6,041,466	[A]251,728	B	B		B	C							1872
1873	[A]9,498,035	[A]395,751	B	B		B	C							1873
1874	[A]10,489,867	[A]437,078	B	B		B	C							1874
1875	[A]8,436,013	[A]351,501	B	B		B	C							1875
1876	[A]8,610,150	[A]358,756	31,763	120,000	12,000	B, D	D							1876
1877	[A]12,610,056	[A]525,419	29,888	172,000	13,000	B, D	D							1877
1878	[A]14,556,924	[A]606,538	36,179	180,000	15,227	B, D	D							1878
1879	[A]18,897,769	[A]787,407	26,112	180,000	19,858	B, D	D							1879
1880	[A]34,986,526	[A]1,041,105	38,940	179,000	40,552	B, D	D							1880
1881	[A]26,281,449	[A]1,095,060	33,887	151,000	99,862	B D	D							1881
1882	23,368,000	6,685,000	39,761	128,000	128,636	B, D	D							1882
1883	19,125,000	4,004,000	47,633	126,000	142,857	[D]4,755	D							1883
1884	20,541,000	3,231,000	90,061	90,000	262,000	[D]4,148	D							1884
1885	18,118,000	2,658,000	661,580	91,000	325,000	[D]5,164	D							1885
1886	23,647,000	2,151,000	1,782,970	102,000	377,145	[D]4,726	D							1886
1887	20,281,000	2,075,000	5,022,632	145,000	678,572	[D]4,791	D	76,295						1887
1888	14,700,000	1,789,000	10,010,868	119,448	690,333	[D]5,096	D	297,612						1888
1889	19,591,000	1,897,000	12,471,466	544,113	303,220	[D]5,400	D	316,476	33,375	1,460	500	48	20	1889
1890	26,800,000	1,658,000	16,124,656	492,578	307,360	[D]6,000	D	368,842	63,496	900	1,20[illegible]	54	278	1890
1891	31,424,000	1,585,000	17,740,301	2,406,218	323,600	[D]9,000	D	665,482	136,634	675	1,400	54	25	1891
1892	27,149,000	1,273,000	16,362,921	3,810,086	385,049	[D]6,500	D	824,000	698,068	521	5,000	45	10	1892
1893	19,283,000	1,032,000	16,249,769	8,445,412	470,179	[D]3,000	D	594,390	2,335,293	400	18,000	50	50	1893
1894	18,078,000	942,000	16,792,154	8,577,624	705,969	[D]1,500	D	515,746	3,688,666	300	40,000	60	8	1894
1895	18,231,000	913,000	19,545,233	8,120,125	1,208,462	[D]1,500	D	438,232	4,386,132	200	44,430	50	10	1895
1896	19,379,000	1,205,000	23,941,169	10,019,770	1,252,777	[D]1,680	D	361,450	4,680,732	250	113,571	1,450	43	1896
1897	17,983,000	1,279,000	21,560,515	13,090,045	1,903,411	[D]322	D	384,934	4,122,356	500	81,098	65,975	19	1897
1898	14,743,000	1,205,000	18,738,706	13,615,101	2,257,207	[D]5,566	D	444,383	3,730,907	360	71,980	546,070	10	1898
1899	13,054,000	1,321,000	21,142,106	13,910,630	2,642,095	[D]18,280	D	390,278	3,848,182	360	69,700	669,013	132	1899
1900	13,258,202	1,300,925	22,362,730	16,195,675	4,324,484	[D]62,259	D	317,385	4,874,392	200	74,714	836,039	[E]1,602	1900
1901	12,625,378	1,206,618	21,648,053	14,177,126	8,786,230	[D]127,259	D	460,520	5,757,086	250	179,151	4,393,658	[E]2,335	1901
1902	12,062,880	1,119,730	21,014,231	13,513,345	12,984,268	[D]185,331	D	396,901	7,480,896	200	331,749	18,083,658	[E]757	1902
1903	11,355,156	1,162,978	20,480,286	12,899,395	24,382,472	[D]854,286	D	483,925	9,186,411		932,214	17,955,572	[E]3,000	1903
1904	11,125,762	1,113,364	18,876,631	12,644,686	29,649,434	[D]998,284	D	501,763	11,339,124		4,250,779	22,241,413	[E]2,572	1904
1905	10,437,195	1,117,582	16,846,660	11,578,110	33,427,473	[D]1,217,337	D	376,238	10,964,247	181,084	[E]3,750,000	28,136,189	[E]3,100	1905
1906	10,256,893	1,248,517	14,787,768	10,120,935	33,098,598	[D]1,213,548	D	327,582	7,673,477	4,397,050	[E]3,627,000	12,567,897	[E]3,500	1906
1907	9,999,306	1,212,300	12,207,448	9,005,396	39,748,375	[D]820,844	D	331,851	5,128,037	24,281,973	2,409,521	12,322,696	[E]4,000	1907
1908	9,424,325	1,160,128	10,858,797	8,523,176	44,854,737	727,767		379,653	3,283,629	33,656,238	1,801,781	11,208,464	[E]15,246	1908
1909	9,299,403	1,134,807	10,632,798	10,745,093	55,471,601	639,016		310,561	2,296,086	30,898,339	1,263,764	9,534,467	[E]5,750	1909
1910	8,794,662	1,053,638	9,916,370	11,755,071	73,010,560	468,774		239,794	2,159,725	33,143,362	1,128,668	8,899,366	[E]3,615	1910
1911	8,248,158	953,515	8,817,112	9,795,464	81,134,391	473,458		226,926	1,695,299	31,317,038	1,278,819	9,526,474	[E]7,995	1911
1912	7,837,948	874,128	8,999,007	12,128,963	87,209,000	484,368		206,052	970,009	28,601,308	1,592,796	11,735,057		1912
1913	7,917,302	948,191	8,781,468	11,567,399	97,788,535	524,568		188,799	956,095	23,893,899	2,375,029	15,009,478	[F]	1913
1914	8,170,335	938,974	8,536,353	9,980,083	99,775,327	502,441		222,773	1,335,456	21,919,740	3,103,585	20,068,184	[F]	1914
1915	7,838,705	887,778	7,835,326	9,364,798	86,561,535	437,274		208,475	875,758	19,041,695	2,823,487	24,942,701	[F]	1915
1916	7,502,394	874,087	7,744,511	8,781,184	90,951,936	[J]1,202,569	[J]677	197,235	769,036	17,714,235	8,738,077	27,644,605	[F]	1916
1917	7,733,300	879,685	7,750,540	8,379,285	93,877,549	[J]3,088,160	[J]12,196	121,231	759,432	15,776,860	36,536,125	32,412,287		1917
1918	7,407,812	808,843	7,285,005	7,866,628	97,531,997	[J]4,367,968	[J]8,374	143,286	877,558	13,365,974	45,451,017	38,750,031		1918
1919	8,137,000	851,000	7,736,000	8,327,000	101,183,000	9,278,000	15,000	121,000	972,000	11,960,000	33,048,000	79,366,000	[F]	1919
1920	7,438,000	906,000	7,400,000	8,249,000	103,377,000	8,738,000	14,000	111,000	945,000	10,774,000	39,005,000	96,868,000		1920
1921	7,418,000	968,000	7,335,000	7,822,000	112,600,000	9,013,000	12,000	108,000	1,158,000	10,043,000	36,456,000	106,166,000	[F]	1921
1922	7,425,000	1,000,000	6,781,000	7,021,000	135,468,000	8,975,000	10,000	97,000	1,087,000	9,383,000	31,766,000	118,684,000	[F]	1922
1923	7,609,000	1,350,000	7,085,000	6,358,000	262,876,000	8,069,000	8,000	86,000	1,043,000	8,707,000	28,250,000	131,023,000	[F]	1923
1924	7,486,000	1,440,000	6,811,000	5,920,000	228,933,000	7,407,000	10,000	445,000	935,000	8,081,000	28,836,000	134,522,000		1924
1925	8,097,000	1,095,000	7,212,000	5,763,000	232,492,000	6,759,000	24,000	1,226,000	829,000	7,863,000	38,357,000	144,648,000		1925
1926	8,961,000	1,956,000	7,272,000	5,946,000	224,673,000	6,274,000	42,000	2,768,000	806,000	7,760,000	41,498,000	166,916,000		1926
1927	9,526,000	2,242,000	7,593,000	6,023,000	231,196,000	6,719,000	60,000	2,821,000	852,000	6,994,000	41,069,000	217,389,000		1927
1928	9,956,000	2,603,000	7,015,000	5,661,000	231,811,000	7,359,000	46,000	2,774,000	1,052,000	6,462,000	38,596,000	257,320,000		1928
1929	11,820,000	3,377,000	6,743,000	5,574,000	292,534,000	7,775,000	19,000	2,358,000	981,000	6,319,000	42,813,000	296,876,000		1929
1930	12,803,000	3,647,000	6,486,000	5,071,000	237,329,000	7,389,000	21,000	1,656,000	994,000	5,736,000	41,638,000	290,457,000		1930
1931	11,892,000	3,363,000	5,327,000	4,472,000	188,830,000	6,456,000	6,000	1,545,000	840,000	5,039,000	37,015,000	332,437,000		1931
1932	12,412,000	3,508,000	4,644,000	3,876,000	178,128,000	6,287,000	5,000	1,136,000	806,000	4,673,000	34,848,000	312,478,000	[F]	1932
1933	12,624,000	3,181,000	4,235,000	3,815,000	172,010,000	4,608,000	5,000	919,000	737,000	4,344,000	41,976,000	402,609,000	[F]	1933
1934	14,478,000	3,804,000	4,234,000	4,095,000	174,305,000	4,860,000	10,000	1,139,000	838,000	4,479,000	46,482,000	381,516,000	[F]	1934
1935	15,810,000	4,236,000	4,082,000	3,902,000	207,332,000	5,355,000	[F]	1,560,000	777,000	4,322,000	54,843,000	392,666,000	[F]	1935
1936	17,070,000	4,663,000	3,847,000	3,847,000	214,773,000	5,633,000	[F]	1,650,000	823,000	4,475,000	58,217,000	427,411,000	[F]	1936
1937	19,189,000	5,478,000	3,559,000	3,845,000	238,521,000	5,494,000	[F]	1,605,000	944,000	7,499,000	70,761,000	510,318,000	[F]	1937
1938[M]	17,426,000	5,045,000	3,298,000	3,684,000	249,749,000	5,521,000	[F]	1,412,000	995,000	24,075,000	60,964,000	475,850,000	[F]	[M]1938
1939[N]	17,331,000	5,105,000	3,150,000	3,574,000	224,345,000	5,601,000	[F]	1,404,000	1,416,000	94,034,000	60,742,000	486,356,000	[F]	[N]1939
Total	969,255,883	134,192,222	585,210,386	407,319,710	5,346,187,983	161,952,941	329,347	38,270,370	125,836,584	551,147,380	1,028,478,155	6,089,426,005	54,077	Total

GENERAL FOOTNOTE: In addition to the figures shown above, *Mineral Resources* gives the following information: Tennessee and Kentucky had small showings of oil shortly after the discovery of oil in the Pennsylvania district in 1859 and in the years 1886-1889; Texas in 1886, 1888 and 1889, and Indiana in 1888 and 1889. No record of the amount of production during these years is available.

[A] Pennsylvania and New York separated in years 1864-1881 by aid of *Arnold and Kemnitzer and Mineral Resources.*

[B] *Arnold and Kemnitzer* give the following additional estimates which are not shown by the official *Mineral Resources:* Ohio, 1860-1875, 200,000 barrels; West Virginia, 1860-1875, 2,800,000 barrels; Kentucky, 1860-1882, 161,000 barrels.

[C] Little production but no record available.

[D] Small production in Tennessee included with Kentucky.

[E] In 1900-1911 Michigan shown with Missouri.

[F] Included with unclassified.

tinued, but not so sharply, for two more years.

The low point for the decade was reached in 1932 with total production of 785,159,000 barrels, and increases from that point were steady and heavy until the recession of 1938 brought a drop of 5.2 percent from production of the previous year.

Average annual production for the past 10 years was 1,020,303,000 barrels, 244,958,000 barrels or 19.4 percent under production for the past year.

United States Crude Oil Production, by States, by Years—(Continued)

Complete Production History of the Nation in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* and *Minerals Yearbook*, except where otherwise indicated in footnotes. Note: the detailed figures for 1918 and earlier years are from *Mineral Resources* for those years, rather than from later reports, which are in thousands of barrels.)

YEAR	Oklahoma	Wyoming	Louisiana	Montana	Arkansas	New Mexico	Michigan	Mississippi	[K]Utah	[L]Alaska	Unclassified	Total United States	Total Value At Wells	[I]Average Value Per Bbl.	YEAR
1859												2,000	$ 22,000	$20.00	1859
1860												500,000	4,800,000	9.00	1860
1861												2,113,609	1,035,668	0.52	1861
1862												3,056,690	3,209,525	1.05	1862
1863												2,611,309	8,225,663	3.15	1863
1864												2,116,109	20,896,576	8.15	1864
1865												2,497,700	16,459,853	6.59	1865
1866												3,597,700	13,455,398	3.75	1866
1867												3,347,800	8,066,993	2.40	1867
1868												3,646,117	13,217,174	3.62	1868
1869												4,215,000	23,730,450	5.60	1869
1870												5,260,745	20,503,754	3.90	1870
1871												5,205,234	22,591,180	4.40	1871
1872												6,293,194	21,440,503	3.75	1872
1873												9,893,786	18,100,464	1.80	1873
1874												10,926,945	12,647,527	1.15	1874
1875												8,787,514	7,268,133	0.97	1875
1876												9,132,669	22,982,822	2.52	1876
1877												13,350,363	31,788,566	2.38	1877
1878												15,394,868	18,044,520	1.17	1878
1879												19,914,146	17,210,708	0.86	1879
1880												26,296,123	24,600,638	0.94	1880
1881												27,661,238	25,448,339	0.92	1881
1882												30,349,397	23,631,165	0.78	1882
1883												23,450,244	25,790,252	1.10	1883
1884												24,218,229	20,595,966	0.85	1884
1885												21,858,744	19,198,243	0.88	1885
1886												28,064,841	19,996,313	0.71	1886
1887												28,283,290	18,877,094	0.67	1887
1888												27,612,357	17,947,620	0.65	1888
1889												35,164,078	26,963,340	0.77	1889
1890												45,823,264	35,365,106	0.77	1890
1891	30											54,262,419	30,536,553	0.56	1891
1892	80											50,514,280	25,906,463	0.51	1892
1893	10											48,431,553	28,950,326	0.60	1893
1894	130	2,360										49,344,526	35,522,095	0.72	1894
1895	37	3,455										52,891,886	57,632,296	1.09	1895
1896	170	2,878										60,959,940	58,518,709	0.96	1896
1897	625	3,650										60,475,450	40,874,072	0.69	1897
1898		5,475										55,363,769	44,193,359	0.80	1898
1899		5,560										57,071,338	64,603,904	1.13	1899
1900	6,472	5,450					E					63,620,529	75,989,313	1.19	1900
1901	10,000	5,400					E					69,389,194	66,417,335	0.96	1901
1902	37,100	6,253	548,617				E					88,766,916	71,178,910	0.80	1902
1903	138,911	8,960	917,771				E					100,461,337	94,694,050	0.94	1903
1904	1,366,748	11,542	2,958,958				E			C		117,080,960	101,175,455	0.86	1904
1905	[H]8,264,000	8,454	8,910,416				E					134,718,085	84,157,309	0.62	1905
1906	[H]18,091,000	7,000	9,077,528				E					126,493,288	92,444,735	0.73	1906
1907	43,524,128	[G]9,339	5,000,221				E		G	C		166,095,335	120,106,749	0.72	1907
1908	45,798,765	[G]17,775	5,788,874				E		G			178,527,355	129,079,184	0.72	1908
1909	47,859,218	[G]20,056	3,059,531				E		G			183,170,874	128,328,487	0.70	1909
1910	52,028,718	[G]15,430	6,841,395				E		G			209,557,248	127,899,858	0.61	1910
1911	56,069,637	[G]196,895	10,720,420				E		G	C		220,449,391	134,044,752	0.61	1911
1912	51,427,071	[G]1,572,306	9,363,439				K		G	F	4,000	222,935,451	164,213,247	0.74	1912
1913	63,579,384	2,406,522	12,495,823			F	K		C	F	11,000	248,446,387	237,121,388	0.95	1913
1914	72,631,724	3,560,375	14,309,435				K		C	F	8,000	265,762,743	214,125,215	0.81	1914
1915	97,915,243	4,245,535	18,191,539				K		C	F	14,000	281,103,839	179,462,890	0.64	1915
1916	107,071,715	6,234,137	15,248,139	44,917			K		C	F	8,000	300,767,453	330,899,898	1.10	1916
1917	107,807,471	8,978,680	11,202,201	99,399			K		C	F	10,300	335,315,601	522,635,213	1.56	1917
1918	103,347,070	12,596,287	16,043,600	69,323			K		C	F	7,943	355,927,716	703,943,961	1.98	1918
1919	94,911,000	13,172,000	17,183,000	90,000	F	F	K		C	F	12,000	378,367,000	780,266,000	2.01	1919
1920	100,306,000	16,631,000	35,714,000	340,000	F	F			F	F	12,000	442,926,000	1,360,745,000	3.07	1920
1921	114,634,000	19,333,000	27,103,000	1,509,000	10,473,000	F				F	12,000	472,183,000	814,745,000	1.73	1921
1922	149,871,000	26,715,000	35,376,000	2,449,000	12,713,000	F				F	13,000	557,531,000	895,111,000	1.61	1922
1923	180,920,000	44,785,000	24,919,000	2,782,000	24,610,000	F				F	15,000	732,407,000	978,430,000	1.34	1923
1924	173,538,000	39,498,000	21,124,000	2,815,000	46,028,000	98,000			F	F	13,000	713,940,000	1,022,683,000	1.43	1924
1925	176,766,000	39,173,000	20,272,000	4,091,000	77,398,000	1,060,000	4,000		F	F	12,000	763,743,000	1,284,960,000	1.68	1925
1926	179,195,000	25,776,000	23,201,000	7,727,000	58,332,000	1,666,000	94,000		F	F	8,000	770,874,000	1,447,760,000	1.88	1926
1927	277,775,000	21,207,000	22,818,000	5,058,000	40,005,000	1,226,000	439,000		F	F	7,000	901,129,000	1,172,830,000	1.30	1927
1928	249,857,000	21,461,000	21,847,000	4,015,000	32,096,000	943,000	594,000		F	F	6,000	901,474,000	1,054,880,000	1.17	1928
1929	355,004,000	19,314,000	20,554,000	3,980,000	24,917,000	1,830,000	4,528,000		F	F	7,000	1,007,323,000	1,280,417,000	1.27	1929
1930	216,496,000	17,898,000	23,272,000	3,349,000	19,702,000	10,189,000	3,911,000		F	F	7,000	898,011,000	1,070,200,000	1.19	1930
1931	180,574,000	14,634,000	21,804,000	2,830,000	14,791,000	15,227,000	3,789,000		F	F	7,000	851,081,000	550,630,000	0.65	1931
1932	152,244,000	13,418,000	21,807,000	2,457,000	12,051,000	12,455,000	6,910,000		F	F	16,000	785,159,000	680,460,000	0.87	1932
1933	182,251,000	11,237,000	25,168,000	2,273,000	11,686,000	14,116,000	7,942,000		F	F	30,000	905,656,000	606,000,000	0.67	1933
1934	180,107,000	12,556,000	32,869,000	3,603,000	11,182,000	16,864,000	10,603,000		F	F	41,000	908,065,000	904,825,000	1.00	1934
1935	185,288,000	13,755,000	50,330,000	4,603,000	11,006,000	20,483,000	15,776,000	F	F	F	65,000	996,596,000	961,440,000	.965	1935
1936	206,555,000	14,582,000	80,491,000	5,868,000	10,469,000	27,223,000	11,928,000	F	F	F	63,000	1,099,687,000	1,190,820,000	1.09	1936
1937	228,839,000	19,166,000	90,924,000	5,805,000	11,764,000	38,854,000	16,628,000	F	F	F	77,000	1,279,160,000	1,513,340,000	1.18	1937
1938[M]	174,994,000	19,022,000	95,206,000	4,946,000	18,180,000	35,759,000	18,745,000	F	F	F	82,000	1,214,355,000	1,367,060,000	1.13	[M]1938
1939[N]	159,430,000	21,537,000	93,992,000	5,948,000	21,169,000	37,238,000	22,804,000	F	F	F	85,000	1,365,261,000	1,239,956,000	.98	[N]1939
Total	4,675,831,457	475,349,573	956,750,911	76,751,639	490,573,000	235,231,000	124,695,000	F	F	F	657,343	22,453,800,766	26,697,425,168	1.19	Total

[G] Insignificant production of Utah (mostly used as fuel) shown with Wyoming.

[H] Figures for Oklahoma and Kansas for years 1905-1906 shown together by *Mineral Resources;* here divided by aid of *Arnold and Kemnitzer.*

[I] Figures on average price per barrel for years 1859-1875 taken from *Arnold and Kemnitzer;* remainder from *Mineral Resources.*

[J] Kentucky and Tennessee figures in years 1916-1918 obtained with aid of *Arnold and Kemnitzer* and *Mineral Resources.*

[K] *Arnold and Kemnitzer* show for Utah the following data: 1907-1923, estimated 37,000 barrels; 1924, 3,000 barrels; 1925, 4,000 barrels; 1926, 525 barrels; 1927, 2,500 barrels; 1929, estimated, 3,500 barrels; total, 1907-1929, 50,525 barrels.

[L] *Arnold and Kemnitzer* show for Alaska the following data: 1904-1919, estimated, 56,000 barrels; 1920, 11,000 barrels; 1921, 10,000 barrels; 1922-1928, estimated, 73,000 barrels; total, 1904-1928, 150,000 barrels.

[M] From Bureau of Mines final summary on petroleum for 1938.

[N] Bureau of Mines figures for first 11 months; December estimated by THE OIL WEEKLY, with aid of weekly reports of American Petroleum Institute.

The past year's total crude oil production, while 4.2 percent over that in the previous year, had an aggregate value $127,104,000, or 9.3 percent less than production a year ago. Average value of oil dropped from $1.13 to about 98 cents per barrel during the year.

Cumulative output of United States wells since the beginning of the industry in 1859 stood at 22,453,500,000 barrels. It had a total

U. S. Crude Oil Production by Fields, 1938-1939, and Cumulative

The figures given herewith for 1938 and 1939 crude oil production have been calculated by The OIL WEEKLY from weekly reports of American Petroleum Institute.

Cumulative figures, indicating output in all years through 1939, embody data published by The OIL WEEKLY January 25, 1937, beginning page 92. In that issue, tables were presented showing production of all United States fields, by years, back to discovery.

Figures shown here for 1938 and 1939 differ, although only slightly, from those in another table in this issue, entitled "United States Crude Production by States, by Years" that appears on pages 150 and 151. The differences arise from the fact that table is based on United States Bureau of Mines data, while the figures on this and following pages are based on the American Petroleum Institute's weekly estimates.

United States Summary

STATE	Year Found	Barrels in 1938	Barrels in 1939	Percent Change 1938-1939	All Years Cumulative
Arkansas	1921	18,338,750	21,136,615	+ 15.2	481,411,715
California	1876	249,907,087	224,435,583	— 10.0	5,347,908,790
Colorado	1887	1,407,550	1,401,350	— 0.4	38,224,720
Eastern States	1859	58,051,850	126,365,440	+117.7	2,918,227,420
Kansas	1889	58,784,250	57,944,300	— 1.3	1,015,025,570
Louisiana	1902	95,204,300	91,849,400	— 3.5	.....
North Louisiana	1906	28,327,350	25,095,600	— 11.4	495,881,400
South Louisiana	1902	66,876,950	69,006,750	+ 3.3	461,060,793
Michigan	1925	18,975,300	22,842,650	+ 20.2	124,587,355
Mississippi	1939	.....	153,900	.....	153,900
Montana	1916	4,859,500	5,629,550	+ 15.4	76,110,039
New Mexico	1924	37,616,200	37,333,600	— 0.8	237,331,044
Oklahoma	1891	170,208,100	152,596,600	— 10.5	4,587,411,417
Texas	1889	474,706,650	482,750,650	+ 1.7	6,112,669,321
East and East Central Texas	1896	184,367,250	175,132,400	— 4.9	1,906,610,655
North Texas	1902	26,703,250	29,796,800	+ 14.7	616,803,226
South Texas	1889	82,569,500	82,477,050	— 0.1	597,818,954
Corpus Christi	1926	45,362,200	45,290,750	— 0.2	223,005,946
Laredo	1922	28,313,700	28,366,650	+ 0.2	175,462,758
San Antonio	1889	8,893,600	8,819,650	— 0.8	199,350,250
Texas Gulf Coast	1901	74,195,850	79,509,000	+ 7.2	1,211,609,998
Texas Panhandle	1922	24,009,200	24,332,200	+ 1.3	355,466,734
West Texas	1922	72,211,650	80,540,050	+ 11.6	1,023,802,633
West Central Texas	1914	10,649,950	10,963,150	+ 2.9	399,978,963
Unclassified	1903	.....	.....	.....	578,158
Wyoming	1894	19,183,800	21,770,250	+ 13.5	475,237,475
Total United States	1859	1,207,243,337	1,248,462,838	+ 3.4	22,407,241,459

Arkansas

Campagnolle, Union	1928	.....	.....	.....	12,416,600
El Dorado, Union	1921	673,200	613,550		55,112,300
Magnolia, Columbia	1938	.....	*3,187,600		3,187,600
Rodessa, Miller	1937	2,447,100	1,445,965		5,133,215
Schuler, Union	1937	6,188,850	6,347,000		13,615,800
Smackover, Ouachita-Union	1922	6,544,800	†6,100,850		362,610,900
Unclassified	....	2,484,800	3,441,650		29,335,300
Total Arkansas	1921	18,338,750	21,136,615		481,411,715

* Discovered March, 1938; production prior to May 1, 1939, included in others.
† Includes Smackover (Light), 697,650; Smackover (Heavy), 5,403,200.

California

San Joaquin Valley:					
Arvin, Kern	1939	.....	449,277		449,277
Belridge, North, Kern	1935	4,843,643	4,357,028		21,540,022
Belridge, South, Kern	1935	440,599	419,167		3,144,601
Canal, Kern	1937	835,669	1,842,510		2,713,079
Canfield Ranch, Kern	1938	35,645	21,806		57,451
Coalinga, Kings	1896	3,878,485	5,717,239		362,060,839
Coles Levee, Kern	1938	9,625	333,161		342,786
Edison, Kern	1934	1,102,688	839,714		6,662,176
Elk Hills, Kern	1919	3,887,949	3,799,442		143,864,504
Fruitvale, Kern	1928	3,088,542	2,371,674		20,574,786
Greeley, Kern	1937	1,169,614	807,066		2,477,032
Kern River, Kern	1900	4,581,362	4,132,523		320,287,262
Kettleman Hills: Middle Dome, Kings	1932	19,467	8,829		549,127
Kettleman Hills: North Dome, Kings-Fresno	1928	25,567,409	19,539,085		221,510,898
Lost Hills-Belridge, Kern	1910	1,297,229	1,222,479		82,321,321
McKittrick, Kern	1898	1,289,113	1,324,971		89,662,170
Midway-Sunset, Kern	1900	22,854,521	18,977,944		874,657,560
Mountain View, Kern	1933	4,028,867	2,982,403		35,652,799
Mt. Poso, Kern	1927	6,232,926	4,301,296		47,751,481
Paloma, Kern	1939	.....	23,658		23,658
Rio Bravo, Kern	1937	1,973,220	2,863,599		4,936,958
Round Mountain, Kern	1927	5,467,724	3,533,592		25,693,680
Strand, Kern	1939	.....	131,137		131,137
Ten Section, Kern	1936	2,468,588	3,257,302		6,845,486
Tupman, Kern	1938	3,343	179,868		183,211
Wasco, Kern	1938	119,792	406,477		526,269
Wheeler Ridge, Kern	1923	112,913	124,958		3,705,975
District Total	1896	95,308,933	83,968,205		2,278,325,545
Coastal District:					
Capitan, Santa Barbara	1930	1,065,896	877,398		4,252,944
Elwood-Goleta, Santa Barbara	1927	2,243,639	1,541,546		65,992,191
Rincon, Ventura	1927	1,402,448	1,227,211		10,977,887
San Miguelito, Ventura	1931	1,046,267	949,172		4,950,420

California—Continued

FIELD AND COUNTY	Year Found	Barrels in 1938	Barrels in 1939	All Years Cumulative
Santa Barbara, Santa Barbara	1930	159,273	113,201	3,308,511
Santa Maria-Lompoc, Santa Barbara	1902	6,235,853	6,341,392	121,260,908
Summerland, Santa Barbara	1894	11,935	10,504	3,159,534
Ventura Avenue, Ventura	1926	12,915,791	12,945,305	202,136,338
Ventura County-Newhall, Ventura-Los Angeles	1859	1,911,659	2,322,478	73,437,959
Watsonville, Santa Cruz	1930	14,145	10,936	203,290
District Total	1859	27,006,906	26,339,143	489,679,982
Los Angeles Basin:				
Brea-Olinda (Fullerton), Los Angeles	1897	2,126,279	2,065,172	164,921,383
Coyote, Los Angeles	1912	.....	.....	139,529,702
Coyote East, Los Angeles	1935	1,274,208	940,902	5,503,407
Coyote West, Los Angeles	1935	3,083,998	3,114,040	15,682,107
Dominguez, Los Angeles	1923	9,815,369	7,124,572	114,244,749
El Segundo, Los Angeles	1937	3,890,509	1,170,252	8,677,302
Huntington Beach, Orange	1920	11,928,329	9,932,701	281,268,942
Inglewood, Los Angeles	1924	5,342,500	4,599,721	116,543,617
Lawndale, Los Angeles	1930	28,646	19,185	784,879
Long Beach, Los Angeles	1921	20,641,136	17,004,158	636,385,322
Los Angeles-Salt Lake, Los Angeles	1894	199,015	190,464	65,940,714
Montebello, Los Angeles	1917	4,101,260	7,458,483	115,279,340
Newport, Orange	1930	.....	.....	22,525
Playa del Rey, Los Angeles	1929	2,306,439	1,799,095	45,307,938
Potrero, Los Angeles	1927	208,713	411,654	2,895,098
Richfield, Los Angeles	1919	3,348,274	3,126,205	89,583,184
Rosecrans, Los Angeles	1924	3,749,925	4,469,570	40,625,659
Santa Fe Springs, Los Angeles	1921	12,624,698	10,057,427	456,673,567
Seal Beach, Los Angeles	1926	3,201,448	2,638,662	84,902,194
Torrance, Los Angeles	1922	5,191,379	6,432,166	97,517,093
Whittier, Los Angeles	1912	338,741	350,260	18,016,833
Wilmington, Los Angeles	1937	34,190,382	31,223,546	79,597,708
Miscellaneous	1894	.....	.....	.....
District Total	1894	127,591,248	114,128,235	2,579,903,263
Total California	1859	249,907,087	224,435,583	5,347,908,790

Colorado

Florence, Freemont	1887	.....	.....	13,384,156
Fort Collins-Wellington, Larimer	1924	111,200	116,350	6,983,100
Iles, Moffat	1925	804,900	730,250	7,734,700
Moffat, Moffat	1924	128,500	.....	5,575,100
Price, Archuleta	1937	177,050	.....	305,900
Unclassified	1909	185,900	554,750	4,241,764
Total Colorado	1887	1,407,550	1,401,350	38,224,720

Eastern States

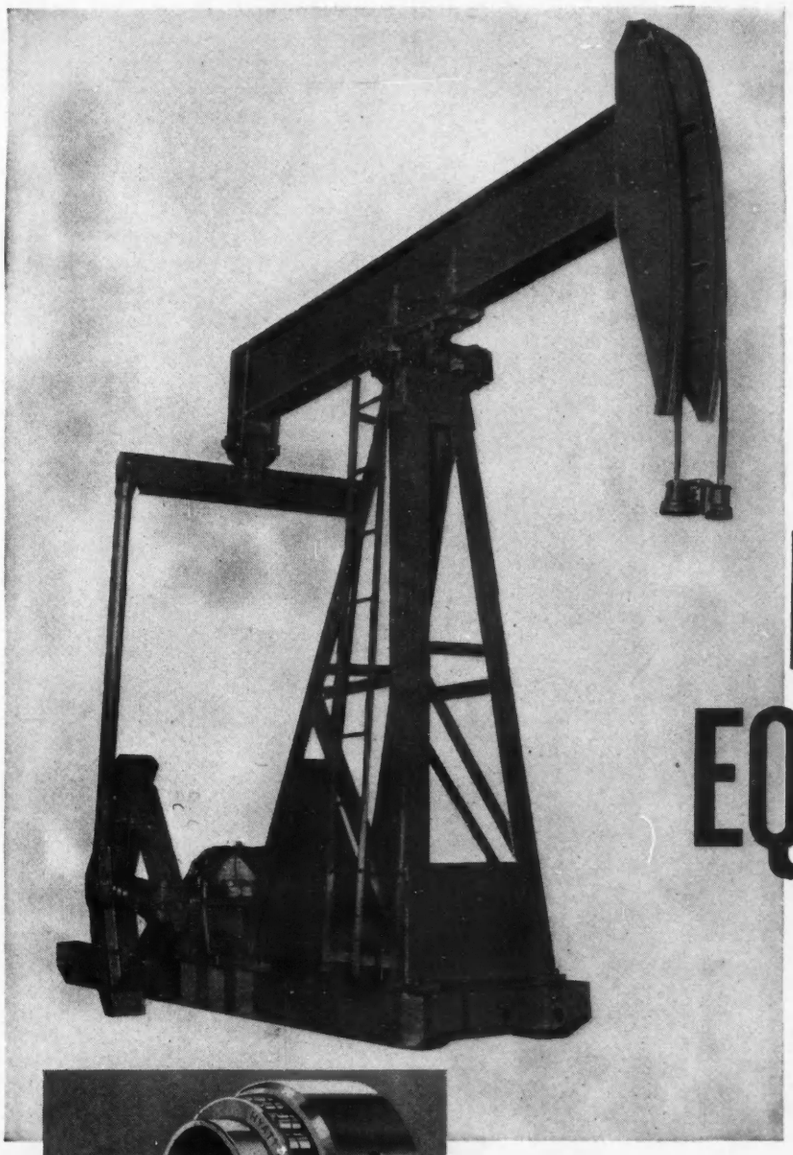
Pennsylvania Grade:				
Allegany District	....	3,372,850	3,360,800	.....
Bradford District	....	15,022,100	14,663,350	.....
Kane to Butler Districts	....	3,051,150	3,398,100	.....
Southwestern Pennsylvania	....	892,250	846,190	.....
Southeastern OhiM	1860	1,157,750	1,178,050	.....
West Virginia	1860	3,615,200	3,534,600	.....
Pennsylvania Grade Total	....	27,111,300	26,981,090	.....
New Pools, Southern Illinois	1937	18,929,300	87,483,000	.....
Old Pools, Illinois and Indiana	1889	4,282,500	3,246,100	.....
Others, eastern	....	7,728,750	8,475,250	.....
Total	1859	58,051,850	126,365,440	*2,918,227,420

* Details by states appear in table on "United States Crude Oil Production by States by Years".

Kansas

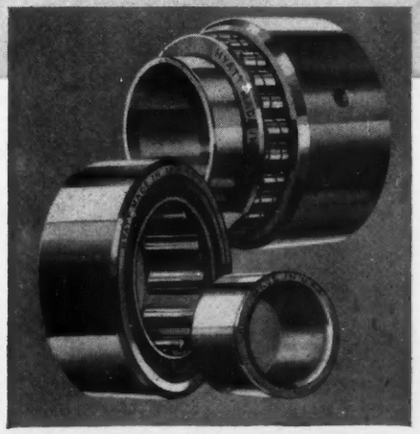
Bemis, Ellis	1937	2,001,550	2,123,600	5,707,150
Bloomer, Barton	1936	895,050	907,150	3,435,200
Burrton, Reno	1934	3,695,450	3,387,750	25,222,150
Chase, Rice	1933	1,753,600	1,525,750	15,925,450
Eldorado-Towanda, Butler	1926	3,039,800	2,671,400	59,283,055
Geneseo, Rice	1936	1,002,700	1,221,200	3,193,800
Graber, McPherson	1936	991,100	991,800	3,143,600
Greenwood County	1922	3,403,800	3,128,850	110,308,570
Hauschild, Rice	1936	41,150	.....	1,146,250
Hollow-Nikkel, Harvey	1936	1,028,250	839,350	4,480,650
Keesling, Rice	1936	750	.....	1,326,150
Lerado, Reno	1937	388,100	290,350	1,282,250

[Continued on page 156]



This EMSCO TWIN CRANK PORTABLE PUMPING UNIT is a typical example of how long life is built into oil field machinery with Hyatt Roller Bearings.

LONGER EQUIPMENT LIFE



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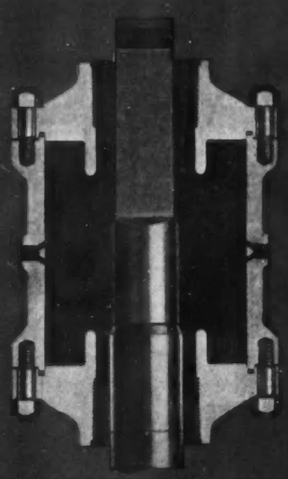
On and on it goes . . . equipment of every description . . . a symphony of mechanical smoothness . . . with gears, shafts, and wheels turning silently, accurately, effortlessly on Hyatt Roller Bearings. Long lived, carefree bearings that serve the petroleum industry so faithfully year after year . . . that help leading builders of oil field equipment to better serve operators. Hyatt Bearings Division, General Motors Sales Corporation, Harrison, New Jersey; Detroit, Chicago, Pittsburgh and San Francisco.

HYATT
ROLLER
BEARINGS

LINE-UP WITH THE QUALITY HOOK-UP . .

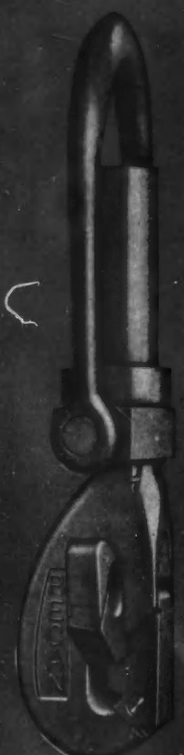
REGAN CROWN BLOCK—TYPE EH

500 tons capacity. 4 or 7 48" sheaves. For continuous over-and-over reeving. Equipped with dual bearings.



REGAN BLOWOUT PREVENTER—TYPE E

Permits packing off of opening around any size or shape of pipe, baby or tool likely to require such pack-off. Available with various types of end fittings.



REGAN COMBINATION HOOK

300 tons; also available in 100 and 200-ton capacities. Embodies two separate load-carrying elements.

REGAN 121" TRAVELING BLOCK—TYPE G

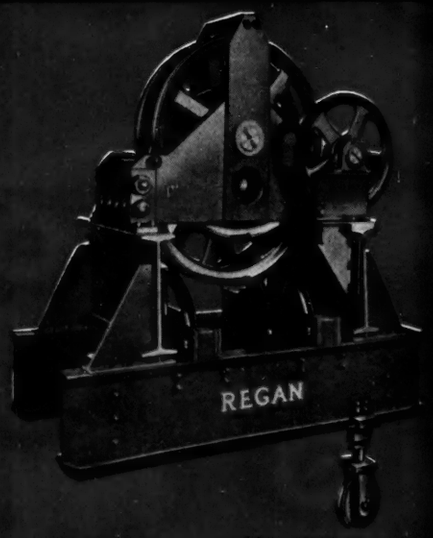
Has large, narrow type, 400 and 500 tons capacity. 5 and 6 sheaves. Width only 19¼" for 5-sheave block.

REGAN 75" TRAVELING BLOCK—TYPE G

250 and 300 tons capacity. 4 or 5 sheaves. Equipped with dual bearings and integral pins rotating with the sheaves.

REGAN TURNING BLOCKS

Made with single, two and three sheaves. Streamlined. 17½ to 50 tons capacity.

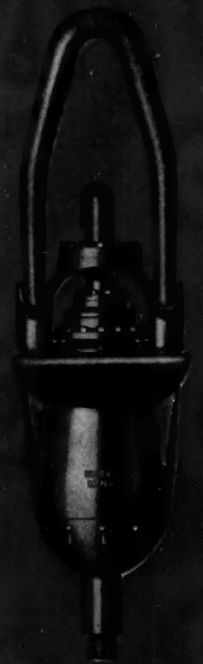


REGAN CROWN BLOCK—TYPE ED

300 and 500 tons capacity. Equipped with 4, 5 or 7 sheaves. 48" sheaves on upper deck; 36" sheaves on lower deck.

REGAN CASING CENTRALIZER

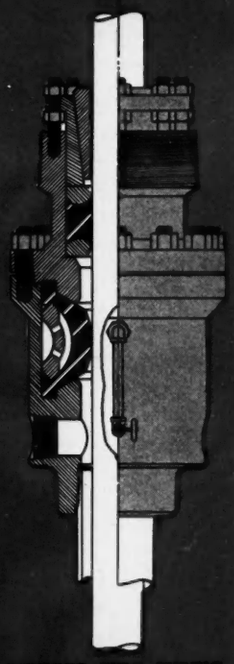
Readily centers casing in hole, preventing side contact with. Installed at or near end of casing. Feet expand by insertion of plug.



REGAN KING SWIVEL

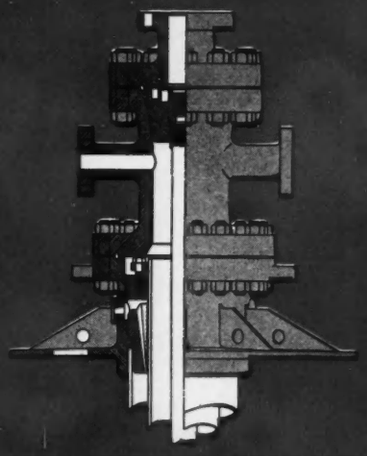
100 or 200-ton capacities. Reverse-thrust ball nut. Embodies many new features. Completely protected bearings.

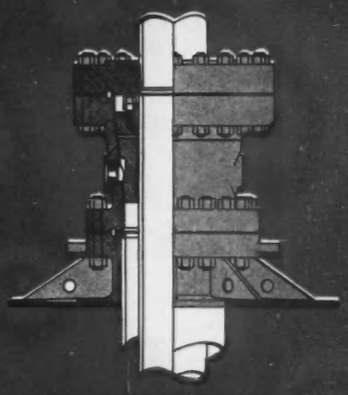
UP.. .....IT'S REGAN ALL THE WAY



REGAN COMBINATION LANDING BASE AND GC-8 DOUBLE PLUG TUBING HEAD

Permits the shortest possible collar space.



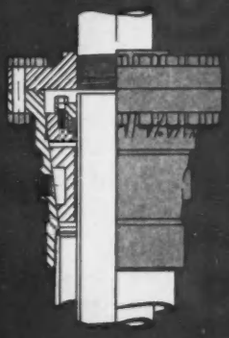


REGAN REGULAR LANDING BASE AND SG-4 CASING HEAD

The companion flange has a drilled nipple.

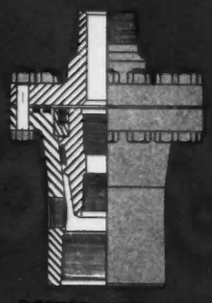
SG-8 STEPPER TYPE TUBING HEAD

Offers system of outside slip suspension, allowing movement of tubing up or down for setting or releasing packer.



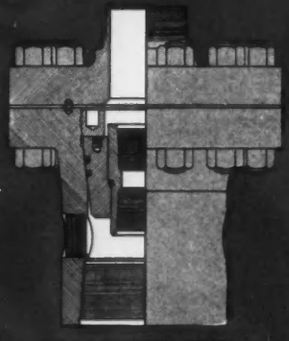
SG-4 SLIP SUSPENSION CASING HEAD

Class B, D or BB. With companion flange.



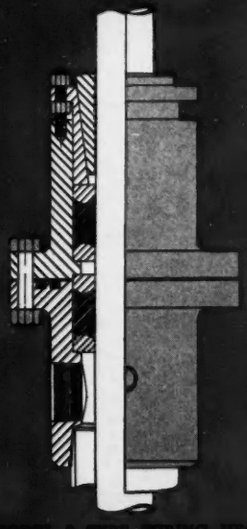
DOUBLE PLUG GC-8 TUBING HEAD

This model has a double plug reducing bushing.



GC-8 TUBING HEAD

Regan regular type.

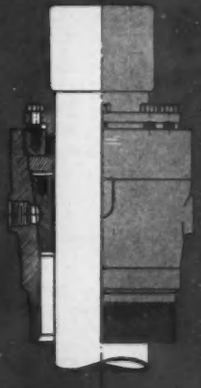


BC MODEL 2 TYPE TUBING HEAD

Permits system of outside slip suspension.

REGAN REPLACEABLE SLEEVE TYPE ROD

Has a sleeve which takes the wear and is replaceable.



TYPE 23-4 SLIP SUSPENSION CASING HEAD

With main connection to outer casing. Solid or split packing unit.

Full details in our new 1940 Catalog. Send for a copy or see Composite Catalog.

Regan

Forge & Engineering Co.

San Pedro California

Quality - Wrought on the Forge of Experience

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Oklahoma and Kansas Representatives
Bovaird Supply Co.
Tulsa and Wichita

Kansas—Continued

[Table continued from page 152]

FIELD AND COUNTY	Year Found	Barrels in 1938	Barrels in 1939	All Years Cumulative
Lorraine, Ellsworth	1935	822,750	629,800	7,000,850
Oxford, Sumner	1928	523,850	324,850	13,007,000
Raymond, Rice	1931	35,550	.....	4,895,050
Rits-Canton, McPherson	1934	1,814,950	1,766,150	15,718,350
Russell County	1925	9,259,300	8,455,600	52,587,047
Sedgwick County	1928	1,407,450	1,254,450	42,436,650
Silica, Rice	1931	5,048,550	3,811,400	19,312,550
Silica South, Barton	1935	.....	*752,900	*752,900
Steckel-Isern, Barton	1935	.....	.....	.....
Theede, Rice	1938	19,950	.....	19,950
Voshell, McPherson	1930	826,700	543,700	22,676,950
Wellington, Sumner	1937	869,400	750,650	2,697,650
Wherry, Rice	1938	1,201,550	1,251,400	2,452,950
Zenith, Stafford	1937	.....	†1,122,050	†1,122,050
Unclassified	1889	18,712,950	20,194,150	595,891,348
Total Kansas	1889	58,784,250	57,944,300	1,015,025,570

* Included with Silica prior to 1939.
† Production prior to March 1, 1939, included in others.

North Louisiana

Unclassified, Caddo	1906	*2,362,650	†2,560,700	150,473,436
Cotton Valley, Webster	1924	3,310,850	4,188,850	23,038,350
Unclassified, De Soto-Red River	1914	108,500	‡	‡18,246,970
Haynesville, Claiborne	1921	1,097,850	1,031,400	68,547,050
Homer, Claiborne	1919	948,150	‡	‡66,838,050
Lisbon, Claiborne-Lincoln	1937	3,236,450	1,699,900	7,211,350
Rodessa, Caddo	1935	13,685,450	9,266,200	61,078,100
Urania, La Salle-Grant-Winn	1925	1,017,900	965,850	23,341,800
Zwolle, Sabine	1929	478,450	976,950	14,447,900
Unclassified	1919	2,081,100	4,405,750	62,658,394
Total North Louisiana	1906	28,327,350	25,095,600	495,881,400

* Includes: Light, 1,458,050; Heavy, 904,600.
† Includes: Light, 1,648,450; Heavy, 912,250.
‡ 1939 production included in total for unclassified fields; cumulative production shown is that at January 1, 1939.

South Louisiana

Bayou Cocatris, Terrebonne	1936	*	1,110,150	*1,110,150
Bayou St. Dennis, Jefferson	1935	5,776,350	4,764,450	17,524,902
Black Bayou, Cameron	1929	1,299,250	1,062,000	7,095,197
Bosco, Acadia-St. Landry	1934	2,113,350	1,695,750	18,852,956
Caillou Island, Terrebonne	1930	6,344,250	4,169,950	27,058,654
Cameron Meadows, Cameron	1931	1,276,550	814,800	7,005,917
Charenton, St. Mary	1935	*	2,482,850	*2,482,850
Gillis, Calcasieu	1934	3,186,800	2,176,450	18,401,008
Hackberry Old, Cameron	1928	1,268,650	1,283,800	6,378,767
Hackberry East, Cameron	1927	2,511,450	1,973,300	22,154,282
Iowa, Calcasieu-Jefferson Davis	1931	5,568,350	4,433,000	39,376,275
Jeanerette, St. Mary	1935	2,487,900	1,763,650	7,482,550
Jennings, Acadia	1902	7,397,100	8,287,450	65,989,669
Lake Barre, Terrebonne	1929	676,000	†	†17,209,585
Lake Washington, Plaquemines	1931	.....	†	†1,919,646
Leesville, La Fourche	1931	1,968,000	1,346,350	21,802,885
Lockport, Calcasieu	1924	374,950	†	†14,492,019
North Crowley, Acadia	1936	*	831,500	*831,500
New Iberia, Iberia	1917	5,285,300	4,148,800	18,573,169
Port Barre, St. Landry	1929	651,800	†	†7,376,873
Roanoke, Jefferson Davis	1934	1,322,350	832,950	8,210,362
Sulphur, Calcasieu	1926	1,239,150	1,392,200	13,967,287
Tepetate, Acadia	1935	2,050,550	1,981,200	7,792,200
Valentine, La Fourche	1937	1,696,300	1,189,500	3,629,350
Venice, Plaquemines	1937	*	480,950	*480,950
Vinton, Calcasieu	1910	460,850	†	†42,360,334
Unclassified	1936	11,921,700	20,785,700	61,501,456
Total South Louisiana	1902	66,876,950	69,006,750	461,060,793

*Production prior to January 1, 1939 included in total for unclassified fields; cumulative production shown is that from January 1, 1939 onward.
† 1939 production included in total for unclassified fields; cumulative production shown is that at January 1, 1939.

Michigan

Unclassified	1925	18,975,300	22,842,650	124,587,355
Total Michigan	1925	18,975,300	22,842,650	124,587,355

Mississippi

Tinsley	1939	.....	*153,900	*153,900
Total Mississippi	1939	.....	*153,900	*153,900

* Production from discovery in September to October 1, 1939 not on record.

Montana

Cat Creek, Petroleum	1920	212,350	.....	14,512,450
Cut Bank, Glacier	1933	2,755,650	3,350,950	16,374,150
Kevin-Sunburst, Toole	1922	1,280,650	1,456,200	36,002,950
Pondera, Pondera-Teton	1928	256,950	.....	5,151,900
Others	1916	353,900	822,400	4,068,589
Total Montana	1916	4,859,500	5,629,550	76,110,039

value at wells of $26,697,425,000, or an average of $1.19 a barrel.

Illinois, which boasted the outstanding gain in production a year ago, amounting to a 221 percent increase over the previous year, made even greater gains during 1939. Production jumped 291 percent

New Mexico

FIELD AND COUNTY	Year Found	Barrels in 1938	Barrels in 1939	All Years Cumulative
Artesia, Eddy	1925	252,800	254,650	6,165,034
Cooper, Lea	1934	3,520,950	3,647,200	16,251,971
Eunice, Lea	1928	12,955,600	12,238,100	51,725,201
Hobbs, Lea	1929	5,232,550	4,288,650	90,706,155
Jal, Lea	1928	2,139,550	2,358,400	11,814,564
Lea, Lea	1929	.....	.....	6,139,304
Maljamar, Lea	1926	1,990,500	2,073,200	8,603,955
Monument, Lea	1935	9,609,700	8,212,200	32,563,207
San Juan County	1924	358,400	309,550	1,099,251
T. & P. State, Lea	1929	.....	.....	320,052
Unclassified	1924	1,556,150	3,951,650	11,942,350
Total New Mexico	1924	37,616,200	37,333,600	237,331,044

Oklahoma

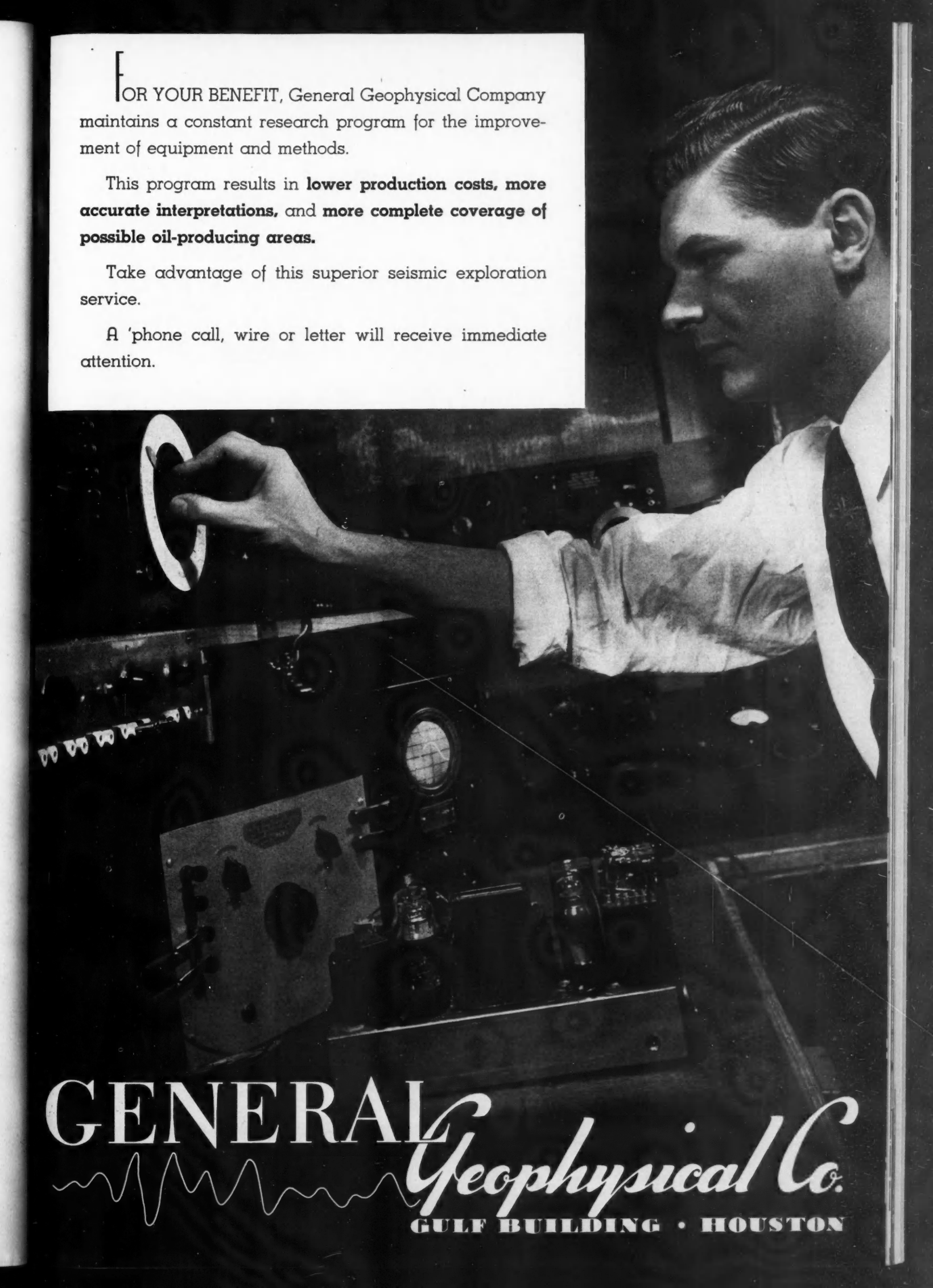
Allen, Pontotoc	1928	2,171,100	2,098,550	45,482,550
Billings, Kay	1937	2,121,500	2,050,600	5,769,600
Blackwell, Kay	1921	1,676,500	1,301,750	28,612,500
Bowlegs, Seminole	1927	3,205,550	2,643,900	89,552,800
Bristow-Slick, Creek	1922	2,488,150	2,366,175	134,530,275
Burbank South, Osage-Kay	1934	3,887,700	3,095,675	23,758,625
Burbank, Osage-Kay	1920	2,746,650	2,661,925	155,502,875
Carr City, Seminole	1929	1,296,650	926,550	27,369,350
Chandler, Lincoln	1934	752,000	518,500	7,738,600
Crescent, Logan	1933	1,858,200	1,056,875	12,298,875
Cromwell, Seminole	1924	1,162,450	1,076,300	55,159,150
Cushing-Shamrock, Payne-Creek	1914	3,787,650	3,448,650	306,117,574
Dora, Seminole	1938	1,566,600	1,224,100	2,790,700
Duncan, Stephens	1921	1,432,600	1,442,700	46,951,350
Earlsboro, Seminole	1927	1,797,250	1,606,700	135,839,900
Earlsboro East, Seminole	1930	1,823,950	1,316,050	43,665,750
Earlsboro South, Seminole	1930	187,250	180,800	7,605,000
Edmond, Oklahoma	1935	2,224,000	1,648,950	16,185,500
Fish, Hughes-Seminole	1932	1,259,350	1,265,100	14,954,650
Fitts, Pontotoc	1934	17,145,950	9,086,150	84,226,950
Graham, Carter	1924	1,666,450	1,304,750	31,452,150
Gray, Pottawatomie	1934	350,100	.....	2,825,550
Healdton, Carter	1914	3,286,550	3,215,550	108,043,227
Hewitt, Carter	1921	1,388,750	1,314,800	78,652,650
Jesse, Pontotoc	....	1,077,200	983,800	3,262,850
Keokuk, Seminole-Pottawatomie	1933	1,804,650	1,187,200	9,739,100
Konawa, Seminole	1930	486,950	392,500	15,018,900
Little River, Seminole	1927	2,725,450	2,238,500	113,383,400
Little River East, Seminole	1930	320,950	246,400	10,455,950
Lucien, Noble-Logan	1933	3,473,050	2,969,300	23,487,350
Mission, Wagoner	1929	560,750	484,300	24,362,550
Moore, Cleveland	1936	1,973,600	1,099,400	7,337,450
Oklahoma City, Oklahoma	1929	38,938,900	35,222,050	474,546,800
Olympic, Okfuskee-Hughes	1936	1,997,050	1,023,700	9,986,150
Osage (Outside Burbank), Osage	1903	6,538,650	6,118,650	362,449,096
Polo, Noble	1935	37,800	1,486,750	4,199,600
Ramsey, Payne	1938	498,050	.....	498,050
Sasakwa, Seminole	1929	553,200	448,600	9,641,750
Sasakwa Townsite, Seminole	1933	30,350	.....	1,860,950
St. Louis-Pearson, Pottawatomie	1932	7,602,650	11,159,100	66,302,200
Sholem-Alechem, Carter-Stephens	1926	980,200	885,350	37,728,350
Searight, Seminole	1927	1,074,150	1,645,000	27,066,650
Seminole, Seminole	1926	2,823,100	2,573,100	161,046,000
Seminole East, Seminole	1929	612,100	457,850	7,808,150
Tatums, Carter	1932	1,384,800	699,900	13,194,400
Tonkawa-Garber-Thomas, Kay-Garfield-Noble	1933	1,552,550	1,402,550	12,822,100
Wewoka, Seminole	1923	845,850	739,350	48,860,000
Yale-Jennings, Payne-Pawnee-Creek	1921	1,375,900	1,254,650	57,717,400
Unclassified	1891	29,657,300	31,027,500	1,559,550,070
Total Oklahoma	1891	170,208,100	152,596,600	4,587,411,417

East and East Central Texas

Cayuga, Anderson-Freestone-Henderson	1934	3,147,550	3,276,750	13,688,014
East Texas, Rusk-Gregg-Smith-Upshur-Cherokee	1930	149,986,350	141,916,600	1,423,142,420
Mexia, Limestone	1918	648,000	*	*95,927,414
Long Lake, Anderson-Freestone	....	†	†772,350	†772,350
Powell, Navarro	1896	858,600	*	*118,874,687
Rodessa, Cass	....	11,539,150	10,201,800	37,708,560
Sulphur Bluff, Hopkins	1937	1,639,200	1,547,350	4,676,700
Talco, Titus-Franklin	1936	9,451,000	9,994,100	30,834,850
Van, Van Zandt	1929	5,688,100	5,126,250	121,517,070
Unclassified	....	1,319,300	2,297,200	59,468,590
Total East and East Central Texas	1896	184,367,250	175,132,400	1,906,610,655

* 1939 production included in total for unclassified fields; cumulative production shown is that at January 1, 1939.
† Production prior to January 1, 1939 included in total for unclassified fields; cumulative production shown is that from January 1, 1939 onward.

[Continued on page 158]



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in 1939, from 24,075,000 barrels in 1938 to 94,034,000 barrels last year.

Influenced by the Illinois boom, Indiana experienced a production gain of 421,000 barrels, from 995,000 barrels in 1938 to 1,416,000 barrels in 1939, or 42 percent.

Other states that gained appreciably in total output, if not on percentage, were Michigan and Arkansas, where increases of 4,000,000 and 3,000,000 barrels, respectively, were recorded. Texas, Kansas, New York, Wyoming, Montana and New Mexico reported increased production, while declines were registered in Pennsylvania, Ohio, West Virginia, California, Kentucky, Colorado, Oklahoma and Louisiana.

Texas Gulf Coast

[Table continued from page 156]

FIELD AND COUNTY	Year Found	Barrels in 1938	Barrels in 1939	All Years Cumulative
Amelia, Jefferson	1936	1,288,050	950,250	2,238,300
Anahuac, Chambers	1935	2,879,150	2,585,500	12,745,239
Barbers Hill, Chambers	1916	3,537,900	3,174,150	66,746,735
Batson, Hardin	1903	642,100	635,600	39,159,984
Conroe, Montgomery	1931	11,883,050	9,552,350	108,956,981
Dickinson, Galveston	1934	2,494,050	3,350,300	8,657,365
Goose Creek, Harris	1908	605,600	*	*70,600,972
Hankamer, Liberty	1929	.....	†	†4,921,697
Hardin, Liberty	1935	‡	2,232,600	‡2,232,600
Hastings, Brazoria	1934	7,053,400	6,758,800	22,542,157
High Island, Galveston	1922	684,350	*	*14,915,318
Hull, Liberty	1918	3,043,600	2,413,400	86,622,712
Humble, Harris	1904	1,239,150	1,072,150	122,343,524
Livingston, Polk	1930	701,250	*	*5,007 580
Manvel, Brazoria	1931	3,391,200	2,863,000	16,999,758
Mykawa, Harris	1929	485,300	*	*3,525,220
Old Ocean, Brazoria	1934	‡	2,983,800	‡2,983,800
Pickett Ridge, Wharton	1935	603,800	574,050	2,541,536
Pierce Junction, Harris	1921	1,200,400	946,200	33,031,143
Raccoon Bend, Austin-Waller	1927	1,204,700	1,014,150	21,396,447
South Houston, Harris	1935	1,173,400	1,038,450	5,406,688
Spindletop, Jefferson	1901	773,450	731,550	124,630,972
Sugarland, Fort Bend	1928	1,222,650	1,210,650	28,632,857
Thompson, Fort Bend	1931	3,979,600	4,534,600	34,504,553
Tomball, Harris-Montgomery	1933	2,535,950	2,610,250	13,901,127
West Columbia, Brazoria	1902	1,597,650	1,993,600	77,214,373
Withers, Wharton	1935	‡	1,272,700	‡1,272,700
Unclassified	1936	19,976,100	25,010,900	277,877,660
Total Texas Gulf Coast	1901	74,195,850	79,509,000	1,211,609,998

‡ Production prior to January 1, 1939 included in total for unclassified fields; cumulative production shown is that from January 1, 1939 onward.

* 1939 production included in total for unclassified fields; cumulative production shown is that at January 1, 1939.

† 1938 and 1939 production included in totals for unclassified fields; cumulative production shown is that at January 1, 1938.

Texas Panhandle

Carson County	1923	2,318,750	2,456,650	9,290,400
Gray County	1925	11,115,950	10,788,700	46,029,200
Hutchinson County	1922	7,807,950	8,405,850	29,406,700
Moore County	1927	455,600	430,750	1,865,950
Wheeler County	1925	2,310,950	2,250,250	12,025,800
Unclassified	....	.....	.....	256,848,684
Total Texas Panhandle	1922	24,009,200	24,332,200	355,466,734

North Texas

Holliday, Archer	1913	3,794,350	3,852,950	117,296,738
Baylor County	1925	42,100	.....	3,708,230
Burkburnett, Wichita	1912	1,826,600	1,780,250	152,156,977
Electra, Wichita	1911	3,067,500	3,044,000	136,321,389
Jack County	1902	2,555 *50	2,210,750	14,198,135
K-M-A-Iowa Park, Wichita-Archer	1913	*5,098,350	†8,758,450	36,612,315
Montague County	1902	3,714,600	3,674,050	36,041,881
Wilbarger County	1924	2,918,500	2,775,950	67,719,748
Young County (North Half)	1926	2,529,050	2,336,900	33,086,406
Unclassified	1936	1,156,950	1,363,500	19,661,407
Total North Texas	1902	26,703,250	29,796,800	616,803,226

* Includes: Deep, 4,617,100; Shallow, 481,250.

† Includes: Deep, 8,181,650; Shallow, 576,800.

South Texas, Corpus Christi Area

Dirks, Bee	1934	*	*	*3,181,491
Flour Bluff, Nueces	1936	1,756,100	1,352,500	3,108,600
Greta, Refugio	1933	2,602,400	1,893,450	24,368,941
Heyser, Calhoun-Victoria	1936	3,094,300	3,368,350	6,462,650
Luby Nueces	1937	a	a2,459,300	2,459,300
Pettus, Bee	1930	*	*	*11,895,795
McCampbell, San Patricio	....	a	a2,851,400	a2,851,400
Placedo, Victoria	1935	3,007,050	2,174,700	9,489,290
Plymouth, San Patricio	1935	4,438,350	4,212,600	17,006,335
Refugio, Unclassified	1936	1,930,650	1,822,350	7,750,050
Saxet, Nueces	1930	†11,959,650	‡8,811,200	42,222,238
Saxet Heights, Nueces	1935	1,141,600	502,050	6,826,770
Tomoconnor, Refugio	1934	4,388,950	4,283,750	14,464,602
Unclassified	1926	11,043,150	11,559,100	70,918,484
Total South Texas, Corpus Christi Area	1926	45,362,200	45,290,750	223,005,946

* Production for 1938 and 1939 included in totals for unclassified fields; cumulative production shown is that at January 1, 1938.

† Includes: Light, 6,116,600; Heavy, 5,843,050.

‡ Includes: Light, 4,258,750; Heavy 4,552,450.

a Production prior to January 1, 1939 included in total for unclassified fields; cumulative production shown is that from January 1, 1939 onward.

South Texas, Laredo Area

FIELD AND COUNTY	Year Found	Barrels in 1938	Barrels in 1939	All Years Cumulative
Exell, McMullen-Live Oak	1937	*	1,158,750	*1,158,750
Government Wells, Duval	1928	4,077,350	3,227,600	39,919,016
Hoffman, Duval	1933	*	1,523,400	*1,523,400
Loma Novio, Duval	1934	4,630,100	5,021,600	20,766,744
Lopez, Duval	1935	2,208,150	1,665,600	7,459,237
North Sweden, Duval	1938	3,069,850	2,824,550	5,894,400
O'Hern, Webb	1938	1,761,550	1,768,850	3,530,400
Seven Sisters, Duval	1935	2,847,450	2,480,950	10,444,609
Unclassified	1922	9,719,250	8,695,350	84,766,202
Total South Texas Laredo Area	1922	28,313,700	28,366,650	175,462,758

* Production prior to January 1, 1939 included in total for unclassified fields; cumulative production shown is that from January 1, 1939 onward.

South Texas, San Antonio Area

Branyon, Caldwell	1928	143,100	*	*893,551
Darst Creek-Manford Guadalupe	1929	2,572,400	2,633,850	48,265,515
Luling, Caldwell	1922	2,510,550	2,427,650	71,459,570
Salt Flat, Caldwell	1928	1,520,350	1,727,850	39,718,916
Unclassified	1889	2,147,200	2,030,300	39,022,698
Total South Texas, San Antonio Area	1889	8,893,600	8,819,650	199,350,250

* 1939 production included in total for unclassified fields; cumulative production shown is that at January 1, 1939.

West Texas

Andrews County	1936	1,305,850	1,802,825	5,223,475
Crane-Upton Counties	1936	11,695,800	11,468,750	42,726,600
Etor County	1936	13,587,750	15,066,600	42,426,700
Howard-Glasscock Counties	1926	5,480,200	6,170,900	91,275,256
Iatan, East Howard-Mitchell	1936	2,332,550	2,125,900	9,415,950
Reagan County	1936	2,349,250	2,266,450	10,307,000
Ward County	1928	8,658,450	7,686,000	54,357,946
Winkler County	1926	13,740,750	12,800,700	223,598,778
Yates, Pecos-Crockett	1926	6,727,150	7,826,500	247,142,053
Rest of Pecos County	1937	2,025,600	3,627,200	7,509,050
Unclassified	1922	4,308,300	9,698,225	289,819,825
Total West Texas	1922	72,211,650	80,540,050	1,023,802,633

West Central Texas

Brownwood, Brown	1902	564,150	*	29,238,288
Desdemona, Eastland-Erath-Commanche	1918	994,350	*	31,568,639
Stephens Fisher	1928	1,196,000	1,063,050	12,768,678
Stebbins-Swann-Nugent-Hawley, Jones	1926	2,065,900	2,628,000	13,350,812
Moran and Other Fields, Shackelford	1902	2,126,000	2,112,000	37,520,512
Breckenridge, Stephens	1916	1,341,000	1,224,750	132,934,216
Young County (South Half)	1917	1,245,550	1,246,100	34,472,110
Unclassified	1914	1,117,000	2,689,250	108,125,708
Total West Central Texas	1914	10,649,950	10,963,150	399,978,963

* Included with "Unclassified" after 1938.

Wyoming

Big Muddy, Converse-Natrona	1894	447,350	437,300	26,237,758
Elk Basin, Park	1894	.....	.....	10,104,488
Garland, Big Horn	1932	846,650	862,550	3,350,350
Grass Creek, Hot Springs	1915	*196,550	.....	26,625,537
La Barge, Lincoln-Sublette	1926	343,250	.....	5,721,500
Lance Creek, Niobrara	1919	4,913,900	7,158,450	23,198,650
Lost Soldier-Ferris, Sweetwater-Carbon	1919	.....	.....	18,732,800
Medicine Bow, Carbon	1937	1,138,550	615,800	2,903,400
Oregon Basin, Park	1928	991,050	976,450	10,793,550
Rock Creek, Carbon	1919	651,900	1,014,300	19,024,450
Salt Creek, Natrona	1894	5,715,400	5,500,950	284,541,313
Wertz, Carbon	1937	.....	†749,050	†749,050
Unclassified	1894	3,939,200	4,455,400	43,254,629
Total Wyoming	1894	19,183,800	21,770,250	475,237,475

* Includes: Light, 3,700; Heavy, 192,850.

† Data prior to 1939 not reported.

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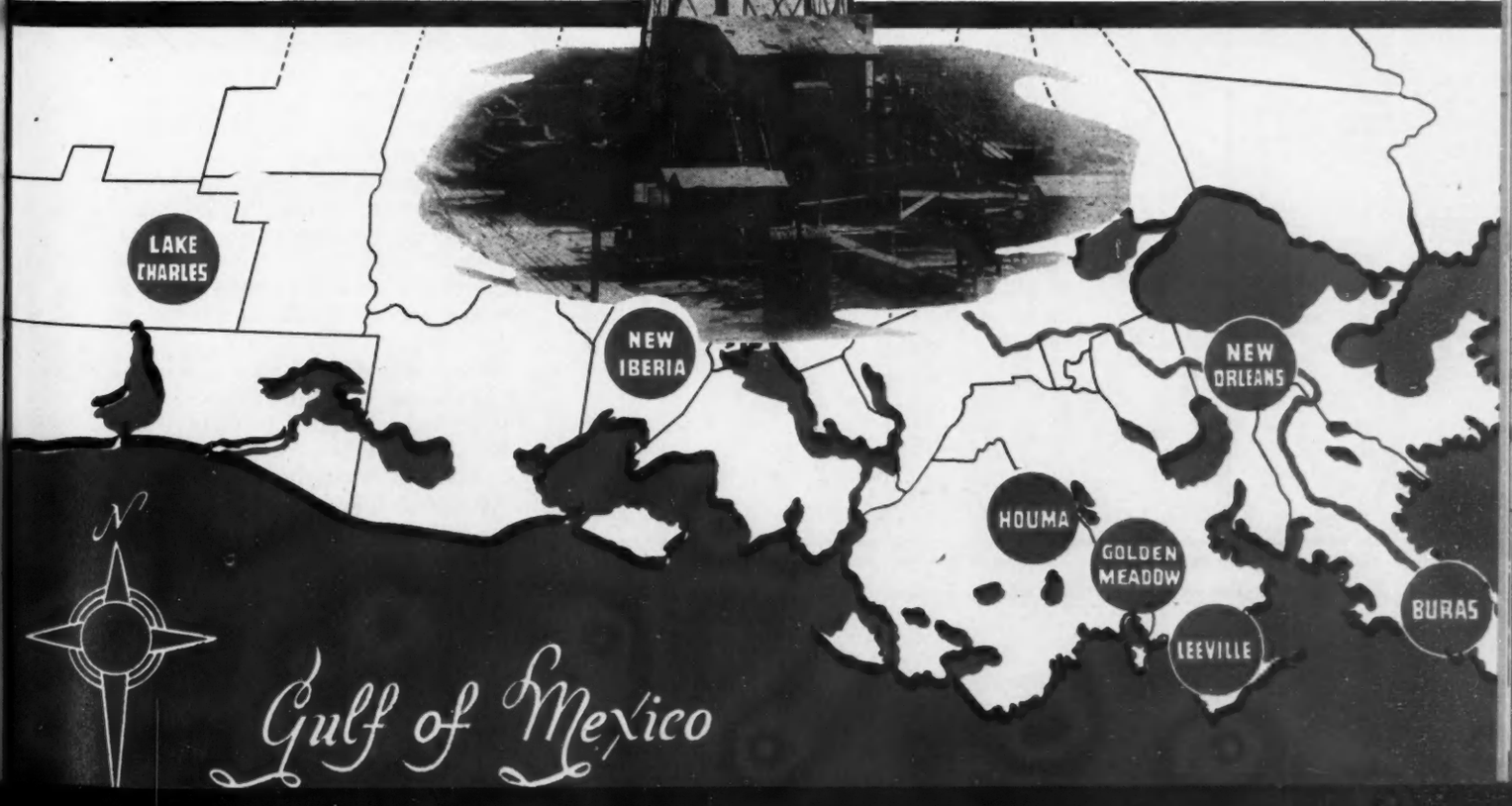


Increased Wildcat Drilling Has Comparable Success

OIL'S search for new sources of supply went forward at an increased pace during 1939, and with success comparable to that won in the previous year.

Wildcat activity, reflected in tests completed, gained nine percent during the year just closed. The percentage of successful ventures dropped slightly, from 13.9 to 13.6.

A total of 2877 wildcat tests were completed in 1939, 239 or 9.1 percent more than the 2638 drilled during the preceding year. The year's completions included 329 successful oil and 62 successful gas ventures, while a year ago 294 oil and 75 gas discoveries were registered.

The percentage of success in the different states ranged from zero in Alabama, Colorado, Florida and Georgia to 63.6 percent in Wyoming.

Although unsuccessful in attempts to bring Alabama, Florida and Georgia into the fold of oil-producing states, the wildcatter did open the previously oil-dry states of Nebraska and Mississippi. One of the 16 wildcats drilled in Mississippi paid off, while one of two Nebraska tests opened the Forest City basin.

The greatest increase in wildcat activity was registered in Illinois, Michigan, Indiana, Kansas and Oklahoma, and with the exception of Michigan and Oklahoma, the percent of productive wells to tests drilled was maintained in the face of faster exploration.

Independent operators, attracted by shallow production possibilities, played an important part in increasing the wildcat drilling pace in Illinois, Michigan, Indiana and Kansas. In these four states practically all the year's wildcat strikes were made at depths of 3500 feet and less.

Illinois wildcatters who drilled 377 tests for 32 strikes in 1938 boosted their output to 492 in 1939 to register 41 successes. The productive rate slipped slightly, from 8.8 percent to 8.3 percent.

Michigan operators gained little by drilling 342 wildcats in place of 197 in 1938. Strikes increased only one over 1938's total of 21 in the face of this marked gain in activity. The productive rate slipped from 10.7 percent to 6.3 percent.

In Indiana, where four strikes were among 37 tests in 1938, wildcatters were rewarded by 18 strikes when they increased their drilling rate 50 percent. The productive rate climbed from 10.8 percent to 32.1 percent.

Kansas wildcatters were almost twice as successful in 1938 as their brothers in other states, and last year they made further advances. Forty-three strikes were among 172 tests drilled in 1938 to provide a productive rate of 25 percent, and in 1939 successful ventures reached 69 in 238 wildcats drilled, raising the productive percentage to 29.

Oklahoma operators gained only two strikes by increasing their wildcat pace 50 percent from 124 tests in 1938 to 185 in 1939. Thirty-two strikes were registered in 1938 and 34 last year, lowering the productive rate from 25.8 percent to 18.4 percent.

Operators in Texas who a year ago drilled 47 percent of the country's 2638 wildcats, slackened their wildcat pace during the year just closed. Completions dropped from 1233 to 1190, or 12 percent; and the year's total for the state was only 41 percent of all drilled in 1939.

Exclusive of Alabama, Colorado, Florida and Georgia where a total of seven tests failed to yield a productive well, wildcatters in East Texas met with the least success.

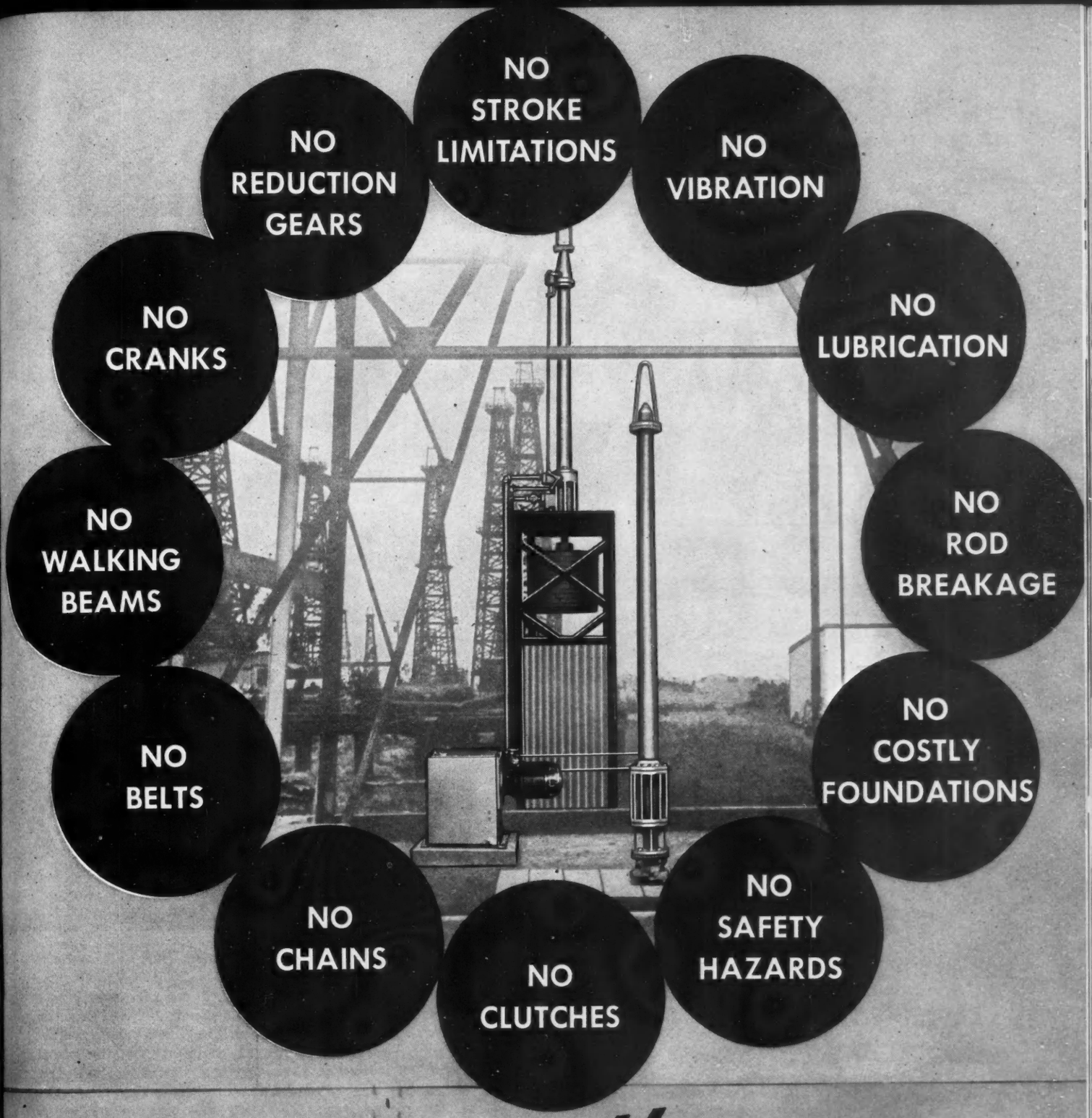
Besides Texas, wildcat operations decreased appreciably in Kentucky, California, Louisiana and New Mexico.

Wildcat Drilling in 1939 and 1938

AREA	1939 Wildcat Activity Results					*1938 Wildcat Activity Results				
	Completed	Oil Wells	Gas Wells	Dry Holes	Percent Productive	Completed	Oil Wells	Gas Wells	Dry Holes	Percent Productive
Alabama	3	...	...	3	0.0	4	0	0	4	0.0
Arizona	...	...	...	...	....	0	0	0	0	0.0
Arkansas	26	3	...	23	11.5	33	4	0	29	12.1
California	76	20	2	54	28.9	135	10	1	124	8.1
Colorado	2	...	...	2	0.0	4	0	0	4	0.0
Florida	1	...	...	1	0.0	1	0	0	1	0.0
Georgia	1	...	...	1	0.0	1	0	0	1	0.0
Illinois	492	39	2	451	8.3	377	27	5	345	8.8
Indiana	56	17	1	38	32.1	37	2	2	33	10.8
Kansas	238	59	10	169	29.0	172	41	2	129	25.0
Kentucky	43	8	...	35	18.6	93	16	6	71	23.7
Louisiana	114	15	3	96	16.7	149	18	13	118	20.8
North Louisiana	32	3	1	28	12.5	...	...	...	...	....
South Louisiana	82	12	2	68	17.1	...	...	...	...	....
Michigan	342	22	...	320	6.4	197	21	0	176	10.7
Mississippi	16	1	...	15	6.3	13	0	0	13	0.0
Missouri	40	...	4	36	10.0	...	...	...	...	....
Montana	6	1	1	4	33.3	3	0	0	3	0.0
Nebraska	2	1	...	1	50.0	3	0	0	3	0.0
New Mexico	33	4	1	28	15.2	43	3	1	39	9.3
North Dakota	...	...	...	...	....	1	0	0	1	0.0
Oklahoma	185	25	9	151	18.4	124	27	5	92	25.8
Texas	1,190	110	26	1,054	11.4	1,233	123	38	1,072	9.9
Eastern	110	3	2	105	4.5	...	...	...	...	....
Northern	230	34	1	195	15.2	...	...	...	...	....
Coastal	103	9	1	93	9.7	...	...	...	...	....
Panhandle	11	...	1	10	9.1	...	...	...	...	....
Southwest	547	44	19	484	11.5	...	...	...	...	....
Western	189	20	2	167	11.6	...	...	...	...	....
Utah	...	...	...	...	....	2	0	0	2	0.0
Wyoming	11	4	3	4	63.6	13	2	2	9	30.8
Total	2,877	329	62	2,486	13.6	2,638	294	75	2,269	13.9

* Data for 1938 taken from "Wildcat Drilling in 1938" by Frederic H. Lahee, The Oil Weekly, May 29, 1939.

Percent productive columns include both oil and gas producing wells.



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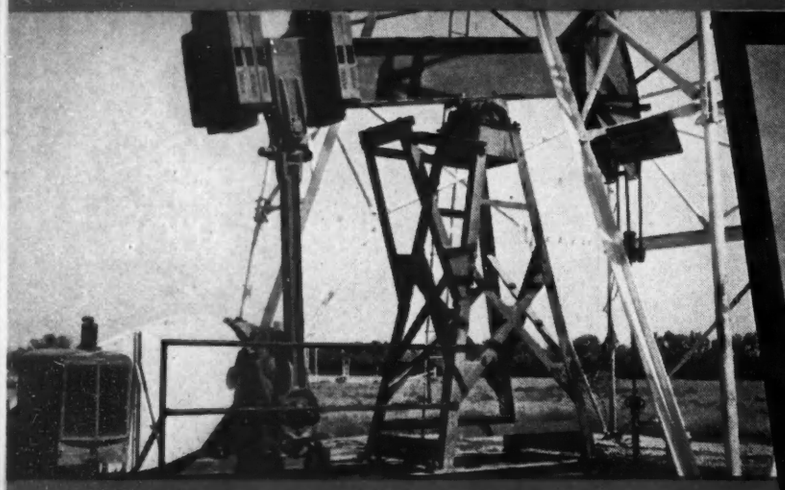

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The next International Petroleum Exposition will be held in Tulsa, Oklahoma, U. S. A., May 18-25, 1940, featuring the important developments of the past two years which science, engineering and practical field experience have contributed to the drilling, producing, refining, pipe line and technical divisions of the great petroleum industry. Plan now to attend the world's first, oldest and greatest oil show—the largest exposition in the world devoted to a single industry.

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WM. B. WAY, General Manager

International Petroleum Exposition, Tulsa, Okla., U. S. A.

TULSA, MAY 18-25, 1940

INTERNATIONAL PETROLEUM EXPOSITION

Rotary and Cable Tool Rigs Fulfill Divergent Needs

Sixty percent of rigs operating in United States are rotaries

GEOGRAPHICAL shifting of operations and technological developments of recent years have caused an increase in the proportion of active rotary-type drilling rigs and a compensating decrease in the ratio of cable tool operations.

Rotary Gains

This publication made in August, 1937, a survey that showed a ratio of 55.4 percent rotary rigs and 44.6 percent cable tool rigs in use in the United States. And it has made a new survey, as of January 1, 1940, which showed that rotary rigs had increased to 59.5 percent of the total drilling operations, while cable tool outfits had decreased to 40.5 percent.

It is still common practice in many areas to employ combination drilling rigs, which embody some rotary-type machinery and some equipment of the cable tool type. In these cases, the cable tools are used in completion work. But in the figures above, operations have been divided simply into the two main classifications, by considering whether hole was made predominantly with rotary or with cable tools.

The gain since 1937 in the proportion of rotary operations has occurred partly because drilling has shifted more to "rotary country," where formations and deep pay zones make rotary rigs necessary or preferable. Moreover, the introduction of light-weight rotary units probably has had considerable influence. Conversely, the decline in cable tool operations has resulted partially from a decrease in the relative importance of development in "cable tool country."

The rotary system has advanced in relative importance through the concentration of much drilling in southern Illinois, where rotary rigs are predominantly favored. And it has gained through increased development of deep fields on the Texas-Louisiana Gulf Coast, in California, in the western portions of Oklahoma and Kansas, and in other areas.

Illinois Changes Picture

However, the Illinois drilling campaign has been the outstanding factor in the increase in rotary rigs in operation. Very few rotary rigs were in use east of the Mississippi River prior to the opening of the new fields of southern Illinois. But rotary operations predominate in the present development of the new fields of Illinois and Indiana, which constitutes a substantial portion of the drilling in progress in the eastern part of the country.

Meanwhile the rotary method continues in use almost exclusively

Rotary Rigs in Use in About 60 Percent of Drilling Operations in the United States January 1, 1940; Cable Tool Rigs Constitute About 40 Percent of Total

STATE	Drilling		Rigs Up		Shut Down		ALL RIGS IN USE (Drilling, Rigs Up, and Shut Down)				
							Total (Rotary and Cable)	Rotary		Cable	
	Rotary	Cable	Rotary	Cable	Rotary	Cable		No.	Percent of Total	No.	Percent of Total
Alabama	...	...	...	...	2	...	2	2	100.0	....	....
Arizona	2	2	...	...	1	3	8	3	37.5	5	62.5
Arkansas	19	2	1	...	10	...	32	30	93.7	2	6.3
California	208	5	57	1	43	...	314	308	98.1	6	1.9
Colorado	1	6	...	1	1	25	34	2	5.9	32	94.1
Florida	...	...	...	...	3	...	3	3	100.0	....	....
Georgia	...	...	...	...	1	...	1	1	100.0	....	....
Illinois	75	67	29	19	55	73	318	159	50.0	159	50.0
New Fields	71	30	26	14	36	21	198	133	67.2	65	32.8
Old Fields	4	37	3	5	19	52	120	26	21.7	94	78.3
Indiana	35	15	2	3	4	6	65	41	63.1	24	36.9
Iowa	1	...	...	...	1	...	2	2	100.0	....	....
Kansas	145	43	17	6	19	6	236	181	76.7	55	23.3
Kentucky	3	17	1	13	3	30	67	7	10.4	60	89.6
Louisiana	186	...	9	...	10	...	205	205	100.0	....	....
North Louisiana	60	...	...	...	10	...	70	70	100.0	....	....
South Louisiana	126	...	9	...	...	...	135	135	100.0	....	....
Michigan	3	135	4	36	...	65	243	7	2.9	236	97.1
Mississippi	14	...	11	...	11	...	36	36	100.0	....	....
Missouri	3	7	...	2	...	10	22	3	13.6	19	86.4
Montana	1	19	1	...	...	19	40	2	5.0	38	95.0
Nebraska	...	1	...	1	...	...	2	....	....	2	100.0
New Mexico	33	67	1	4	1	44	150	35	23.3	115	76.7
New York	...	26	...	13	...	23	62	....	....	62	100.0
Ohio	2	77	1	11	3	27	121	6	5.0	115	95.0
Oklahoma	204	35	40	7	48	12	346	292	84.4	54	15.6
Oregon	...	...	...	...	...	1	1	....	....	1	100.0
Pennsylvania	5	136	...	7	1	16	165	6	3.6	159	96.4
South Dakota	2	...	...	...	...	...	2	2	100.0	....	....
Tennessee	2	3	...	...	1	2	8	3	37.5	5	62.5
Texas	805	185	65	26	101	86	1,268	971	76.6	297	23.4
East Texas Field	3	...	3	...	8	...	14	14	100.0	....	....
Rest of East Texas	30	...	5	...	16	2	53	51	96.2	2	3.8
North Texas	129	16	11	...	28	10	194	168	86.6	26	13.4
South Texas	223	22	21	4	32	7	309	276	89.3	33	10.7
Corpus Christi	142	...	11	...	13	...	166	166	100.0	....	....
Laredo	56	3	7	1	9	2	78	72	92.3	6	7.7
San Antonio	25	19	3	3	10	5	65	38	58.5	27	41.5
Texas Gulf Coast	148	...	5	...	6	...	159	159	100.0	....	....
Texas Panhandle	74	23	8	5	2	8	120	84	70.0	36	30.0
West Texas	192	67	12	6	9	25	311	213	68.5	98	31.5
West Central Texas	6	57	...	11	...	34	108	6	5.5	102	94.5
Utah	1	3	...	1	...	3	8	1	12.5	7	87.5
Washington	...	...	...	...	...	1	1	....	....	1	100.0
West Virginia	1	61	...	14	...	12	88	1	1.1	87	98.9
Wyoming	20	23	2	2	5	22	74	27	36.5	47	63.5
Total United States	1,771	935	241	167	324	486	3,924	2,336	59.5	1,588	40.5

in California and on the Gulf Coast, and it greatly predominates in the Mid-Continent; although cable tool rigs are employed in important numbers for shallow drilling in Oklahoma, Kansas, the Texas Panhandle, North Texas, West Central Texas, and Southwest Texas, and for drilling the hard formations of West Texas.

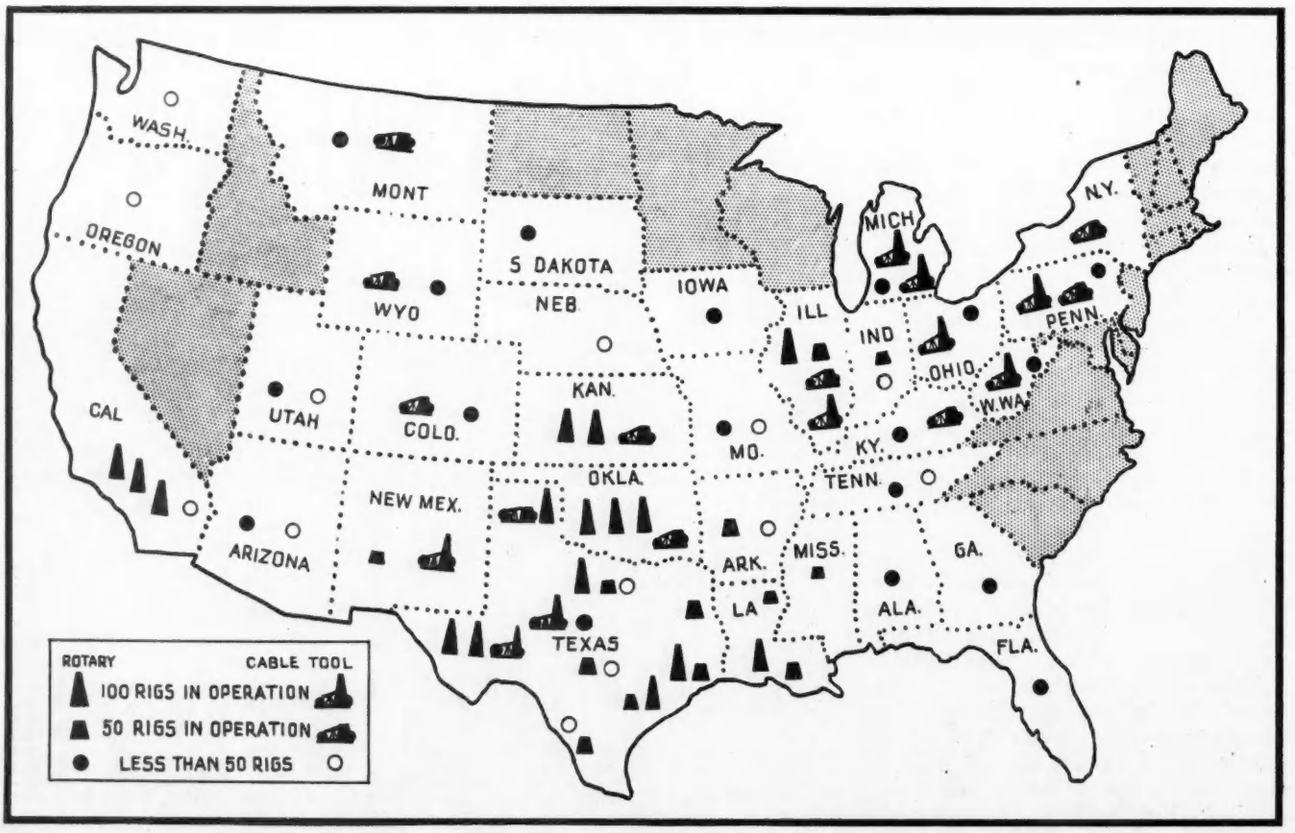
Cable Tool Areas

On the other hand, the cable tool method of drilling still is used almost exclusively in the Appalachian region and in Michigan. It predominates greatly in the Rocky Mountain region, being employed almost exclusively in Colorado and Montana, in two-thirds of the operations in Wyoming, and in three-fourths of the drilling in New Mexico.

Drilling in the United States at Beginning of Year

STATE OR DISTRICT	RIGS IN OPERATION												
	Drilling			Rigs Up			Shut Down			Total (Drilling Rigs Up, Shut Down)			
	1938	1939	1940	1938	1939	1940	1938	1939	1940	1938	1939	1940	Percent Change 1939-40
Alabama	....	1	....	....	1	....	4	3	2	4	5	2	— 60.0
Arizona	....	3	4	....	....	....	....	1	4	....	4	8	+100.0
Arkansas	33	27	21	3	4	1	7	8	10	43	39	32	— 18.0
California	249	187	213	72	62	58	39	55	43	360	304	314	+ 3.3
Colorado	11	11	7	2	1	1	15	12	26	28	24	34	+ 41.5
Florida	2	3	....	....	1	....	2	1	3	4	5	3	— 40.0
Georgia	....	....	....	....	....	....	....	....	1	....	....	1	....
Illinois	58	121	142	7	93	48	79	158	128	144	372	318	— 17.2
New Fields	54	94	101	7	79	40	60	89	57	121	262	198	— 24.4
Old Fields	4	27	41	....	14	8	19	69	71	23	110	120	+ 9.1
Indiana	27	22	50	....	7	5	9	7	10	36	36	65	+ 80.5
Iowa	....	....	1	....	....	....	....	....	1	....	....	2	....
Kansas	331	128	188	41	19	23	70	21	25	442	168	236	+ 40.4
Kentueky	13	59	20	3	8	14	8	17	33	24	84	67	— 20.2
Louisiana	184	178	186	24	8	9	31	14	10	239	200	205	— 2.5
North Louisiana	73	80	60	9	7	....	9	11	10	91	98	70	— 28.6
South Louisiana	111	98	126	15	1	9	22	3	....	148	102	135	+ 25.0
Michigan	183	98	138	26	26	40	....	35	65	209	159	243	+ 52.7
Mississippi	4	....	14	....	1	11	13	8	11	17	9	36	+300.0
Missouri	....	....	10	....	....	2	....	....	10	....	....	22	....
Montana	22	14	20	1	4	1	18	24	19	41	42	40	— 4.7
Nebraska	1	1	1	....	....	1	1	....	....	2	1	2	....
New Mexico	94	96	100	8	7	5	6	38	45	108	141	150	+ 6.4
New York	19	22	26	2	4	13	16	7	23	37	33	62	+ 88.0
Ohio	82	78	79	12	20	12	28	27	30	122	125	121	— 3.2
Oklahoma	292	225	239	55	23	47	107	47	60	454	295	346	+ 17.3
Oregon	....	....	....	....	....	....	....	....	1	....	....	1	....
Pennsylvania	89	99	141	19	15	7	17	27	17	125	141	165	+ 9.9
South Dakota	....	....	2	....	....	....	....	....	....	....	....	2	....
Tennessee	....	....	5	....	....	....	....	....	3	....	....	8	....
Texas	1,175	803	990	160	65	91	206	230	187	1,541	1,098	1,268	+ 15.5
East Texas Field	71	28	3	10	5	3	24	6	8	105	39	14	— 64.0
Rest of East Texas	55	28	30	19	7	5	19	15	18	93	50	53	+ 10.6
North Texas	162	89	145	17	4	11	23	52	38	202	145	194	+ 33.8
South Texas	230	236	245	31	26	25	39	48	39	300	310	309	— 0.3
Corpus Christi Area	124	132	142	22	11	11	20	12	13	166	155	166	+ 7.1
Laredo Area	63	61	59	5	10	8	11	16	11	79	87	78	— 10.3
San Antonio Area	43	43	44	4	5	6	8	20	15	55	68	65	— 4.4
Texas Gulf Coast	157	118	148	23	8	5	12	2	6	192	128	159	+ 24.2
Texas Panhandle	134	44	97	21	4	13	15	24	10	170	72	120	+ 66.5
West Texas	323	225	259	38	9	18	55	48	34	416	282	311	+ 10.2
West Central Texas	43	35	63	1	2	11	19	35	34	63	72	108	+ 50.0
Utah	....	1	4	....	....	1	....	....	3	....	1	8	+700.0
Washington	....	....	....	....	....	....	....	....	1	....	....	1	....
West Virginia	110	52	62	20	9	14	22	15	12	152	76	88	+ 10.5
Wyoming	36	32	43	4	2	4	19	38	27	59	72	74	+ 2.8
Total	3,015	2,261	2,706	459	380	408	717	793	810	4,191	3,434	3,924	+ 12.5

Rotary and Cable Tool Rigs in Operation in United States January 1, 1940



HIGHLIGHTS IN THE WEEK'S NEWS

Allowables

California proration group moves to retard well drilling

California's drive to cut the number of new drilling wells in 1940 resulted in the adoption of a resolution by the Central Committee of California Oil Producers to supplement its work by a voluntary curtailment of drilling.

C. G. Williams, chairman of the new-well committee of nine members, submitted the findings of the group and his suggestion that it work in cooperation with the umpire met with approval.

The new-well committee was requested to complete a survey of the wells drilling or about to be drilled. Chairman Williams revealed the following interesting facts as a result of the survey:

That if the present drilling rates are maintained for the ensuing year, the daily well allotments will be reduced approximately one third, due to allotments required by projected new and recompleted wells; there is no reason in the opinion of the new well committee why the number of wells forecast for 1940 could not properly be extended over the next three years.

Many of the new and recompleted wells placed on production during 1939 and now in the course of drilling are unnecessary wells from every standpoint and have been drilled with the apparent purpose of increasing gross production allotments. The disappointing fact is that in most cases such gross allotments have not been increased due to current monthly reductions in top well allotments and the power factor prorating intermediate well allotments, both of which lower the allotment to other wells of the drilling company.

The drilling of new wells and the exploration for and subsequent development of deeper zones within the confines of present producing fields should be discouraged until such time as the decline of production in California is more than sufficient to supply the demand for allotments to necessary new and recompleted wells, whereupon the drilling of unnecessary wells may be resumed to the extent indicated by the underage of allotments.

The new-well drilling committee does not condemn in any way the drilling of new wells or deepening of old wells caused by oil and gas lease covenants, except wherein the lessee does not avail himself of the provision permitting the expiration of time between the completion of one well and the commencement of a subsequent well; offset competitive wells on adjoining properties; and drainage by wells producing on adjoining properties.

Drilling of wildcat wells drilled in expectancy of discovery of new fields where production is at present nonexistent is commendable and is not condemned.

In addition to the above data, Chairman Williams' survey requested that each operator be informed by the umpire in writing to drill or recomplete necessary new wells on his property at such locations as will not force the drilling of an undue number of offset wells on adjoining lands. It was also requested that any new well so drilled by any operator should not be commenced prior to the time required under the oil and gas lease covering the lands upon which the well is located. Further, the umpire was authorized to obtain direct information from operators in such manner as he deems necessary with respect to the location, probable depth and prospective producing horizon of new wells and old wells proposed to be recompleted; such information obtained is to be used by the umpire in attempting to secure compliance with voluntary curtailment of drilling operations on unnecessary wells.

The umpire was instructed to furnish members of the new-well committee a statement each month showing the drilling operations on new and recompleted wells, and a list of the wells he deems to be unnecessary. Any operator may appeal from the decision of the umpire classifying his well unnecessary, such appeal is to be presented to the committee, and if the umpire is upheld in his decision, the operator may then appeal to the central committee for review and final action.

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California Central Committee cuts February allowable

The Central Committee of California Oil Producers last week cut the state's allowable crude production for February to 594,000 barrels from the January allowable of 597,384 barrels. The top allowable for maximum producing wells was reduced by 10 barrels to 185 barrels daily.

Lawrence Vander Leck, committee chairman, reported average daily production for the first 21 days of January at 615,000 barrels, or 2750 barrels under the corresponding period a month ago.

Twenty-one top wells and 68 lesser wells were completed during the first 18 days of January, with indications that 12 more top and 35 lesser wells would be completed during the remainder of the month, reported L. L. Aubert, chairman of the allocation committee.

Texas February order restores 7-day flow except East Texas

The Texas Railroad Commission has issued its February statewide proration order providing for 7-day production in all fields except East Texas, where the allowable remains at 690,000 barrels a day, but the field will be closed in for 12 days during the month.

Total allowable for the state is 1,390,-151 barrels. This is 18,751 barrels higher than the United States Bureau of Mines' estimate of consumer demand for Texas oil during February. However, because Texas producers usually fail to produce 2 percent of allowables assigned, the commission estimated that underproduction would amount to 33,987 barrels, which would result in actual output of 15,000 barrels a day less than the bureau estimate.

The comparative allowables for January 1 and February 1 by districts are indicated in the table below:

	District—	Allowable* Jan. 1	Allowable Feb. 1
1	Southwest Texas	39,505	24,876
2	Southwest Texas	92,362	60,403
3	Gulf Coast	334,715	225,372
4	Southwest Texas	239,048	138,121
5	East Central Texas	34,505	21,442
6	East Central Texas	93,748	58,573
	East Texas field	690,000	404,480
7-B	West Central Texas	41,479	33,805
7-C	West Central Texas	28,081	22,356
8	West Texas	336,879	196,656
9	North Texas	153,193	124,036
10	Panhandle	133,981	80,031
	Totals	2,217,496	1,390,151

*Allowables for January 1, 1940, are the scheduled amounts from which deductions were made for shutdowns. February 1 allowables are the exact amounts the fields are permitted to produce during each day of the week. The allowable of 404,480 barrels for the East Texas field is the true allowable, after shutdown deductions are made. The order still provides for production of 690,000 barrels on each day the field is permitted to produce.

Marginal Wells

The commission at the same time issued an order defining marginal wells as those which are unable to pump

more than the statutory minimum on the average over a period of 30 days. On this basis, it appeared that East Texas marginal wells would be allowed to produce continuously regardless of the shutdown order.

Allowables in several of the flush fields were cut drastically to effect 7-day production, but because of the wide difference in scheduled allowables and net allowables during January when fields were closed in for 13 days, it was impossible to estimate these reductions or determine exactly where they would apply.

As a general program, however, it appeared from the order that the commission planned to allow to be produced in February about the same amount of oil that was produced during the 18 days in January when the wells were allowed to flow. While this was an inaccurate method of calculation, it appeared to be the most practical to be used in determining whether fields were increased or decreased.

Michigan to survey for proration data

The Michigan Conservation Department has engaged International Geophysics, Inc., Los Angeles, to survey certain Michigan fields for the compiling of bottom-hole pressure, fluid level and gas/oil ratio data. It marks the first time such a survey has been made.

The purpose behind the tests, officials said, is to obtain data to be used in an extensive survey of the "best methods" for prorating Michigan's lime producing fields. The State Advisory Board, certain operators and the state staff, F. R. Frye said, has frequently considered whether the flat allowable method is best suited for Michigan. Without any adequate data, Frye explained, no one could properly arrive at an answer.

The survey will be centralized on fields under proration (Walker-Tallmadge, South Overisel, New Salem and Temple) with some work in one or two other fields which may be developed up to proration this year. Key wells will be tested each month.

Arkansas February total not changed, fields are adjusted

Although in line with its action of December 18 setting allowables for Arkansas for both January and February, the Arkansas oil allowable for February was left unchanged, the Arkansas Oil and Gas Commission made some small changes in allocations of that figure. The allocation for controlled fields was raised to 42,980 barrels for February over their allotment of 41,802 barrels in January. Settled fields were cut for February from 28,198 barrels to 27,020 barrels.

Following were the February allocations given controlled fields for February: Atlanta, 900 barrels, up 300 barrels; Buckner, 2679 barrels, up 274 barrels; Dorcheat, 1200 barrels, up 900 barrels; Magnolia, 18,907 barrels, down 1307 barrels; Schuler (Jones sand), 15,000 barrels, up 3 barrels; Schuler (Reynolds lime), 2801 barrels, unchanged; and Village, 1493 barrels, up 8 barrels.

Louisiana increases February allowable to 273,253 barrels

The Louisiana Conservation Commission last week set the February daily allowable for Louisiana at 273,253 barrels, an increase of 5061 barrels over January. South Louisiana fields were hiked 5482 to 211,809 barrels and North Louisiana was cut 781 to 61,444 barrels.

North Louisiana fields were given the following allowables for February: Cotton Valley, 9704 barrels; Lisbon, 6000 barrels; Rodessa, 19,400 barrels; Shreveport, 6640 barrels; and remaining fields 19,700 barrels.

Oklahoma market demand hearing set January 30

Representatives of Oklahoma purchasers and producers will meet in the Oklahoma Corporation Commission's court room, Oklahoma City, at 10 a.m. Tuesday, January 30 to view the market demand for oil in February. A formal hearing will be held at 2 p.m. on the same day.

Compact

Interstate Oil Compact condemns Cole bill

Discussion of plans for opposing federal control of the oil industry, and the preparation of a forecast of the 1940 trend were the principal subjects before the Interstate Oil Compact Commission meeting in Wichita, Kansas, last week. Governor Leon C. Phillips of Oklahoma was named chairman of the commission for the year, and Andrew Schoeppel of Kansas was named vice chairman. They succeed Ernest O. Thompson, chairman for the past three years, and Hiram Dow.

In his introductory address Governor Payne Ratner of Kansas, voiced opposition to the Cole bill because it would vest too much power in Harold L. Ickes.

Ratner pointed out that vast progress has been made in the conservation field without the aid of the federal government other than through the Connally act. He agreed that the tax on import oil, and the estimates of demand prepared by the United States Bureau of Mines are both beneficial, but beyond this he thought additional federal control was unnecessary.

"The Cole bill is designed as a conservation measure," Ratner said, "yet the federal government is without the necessary police power to enforce such a program." He thought this plan was largely a duplication of the conservation laws which most of the states have now, and that Ickes is the only man who wants the bill.

Ratner warned the industry that the intolerable encroachments on state rights would risk the prosperity of the entire oil industry.

"The Cole bill," he said, "would stifle private initiative. Socialized government leads to dictatorship, and this is not needed in the oil industry. The Cole bill is the most serious calamity that could befall the oil industry, and will result in the regimentation of that industry."

Governor Phillips endorsed Ratner's statements, and pointed out that the states have indicated their desire to cooperate by the use of the estimates made by the United States Bureau of Mines.

Hiram Dow speaking for the governor of New Mexico, said that his state would oppose the bill.

Speaking for Texas, Railroad Commissioner Jerry Sadler "apologized" for the Texas governor, and said that no commitment had been received from him. The entire railroad commission, however, plans to attend the Washington hearings on the bill, and do all it can to oppose the measure.

Lafayette Hughes, representing Colorado, announced that it would be there to join the battle, and F. R. Frye, the Michigan representative, and O. C. Bailey, representing Arkansas, agreed with the other speakers.

Plan Opposition Campaign

Members of the compact and the representatives of the various states spent several hours in an executive session, working out details of the plan to oppose the measure at hearings in Washington. Governor Ratner said that he had joined with Governor Phillips and Governor Miles of New Mexico, in an invitation to 17 other oil producing states, asking them to join the group in opposing the bill.

Bureau Director Discusses Statistics

The statistical portion of the hearing was in large measure given over to an address by Dr. A. G. White, director of the United States Bureau of Mines, who presented his forecast for the first quarter of 1940. He explained that much of the large volume of excess gasoline now in storage resulted as a by-product of unusually high runs necessary for the production of sufficient fuel oil. Because there is an inadequate stock of the latter on hand now, and the winter has been unusually cold, he predicted as much as 100,000,000 gallons of gasoline might be in storage by March 31.

While he found this condition undesirable, he indicated that he thought it presented no serious hazard to the industry, although it was likely to result in lower prices for gasoline.

Fell Says Crude Output High

Harold Fell, speaking for the Independent Petroleum Association of America, argued that the states were allowing the production of too much crude oil. He said that the association favored a material reduction in allowables during the first quarter, and also urged that refiners curtail runs to stills.

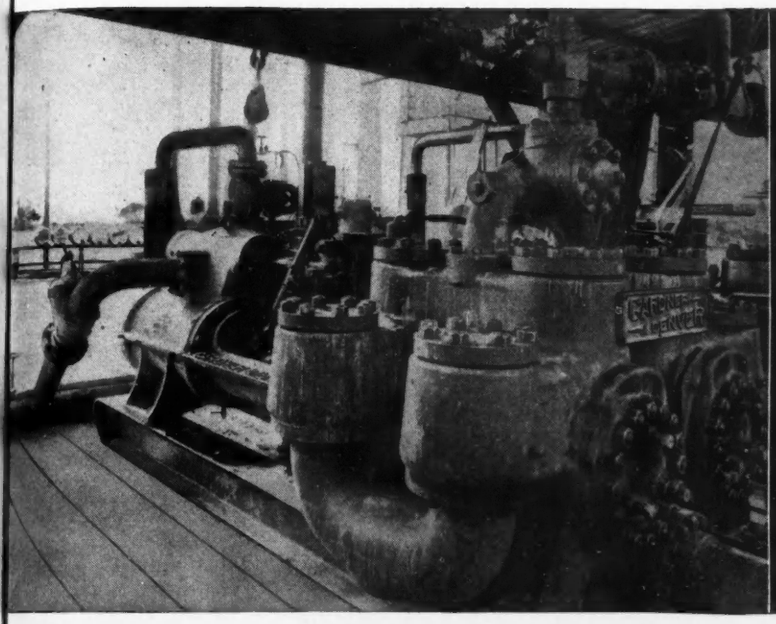
Fell accused several of the states of producing considerably more oil than was recommended by the United States Bureau of Mines. He said that Texas during December had produced above the estimates, a statement which was promptly denied by Jerry Sadler. Fell said that his figures were from the American Petroleum Institute, and Sadler insisted that the data from sworn reports filed by the operators, was a more accurate index.

Buttram Urges More Control

Frank Buttram, president of the Independent Petroleum Association of

Engineered for Better Performance —Proved by Field Experience

GARDNER-DENVER SLUSH PUMPS and DRILLING ENGINES



GARDNER-DENVER 20-INCH STEAM SLUSH PUMPS

TROUBLE-FREE PERFORMANCE
Improved Gardner-Denver fluid end assures less fluid friction and quicker filling—makes higher suction lift possible.

QUIET OPERATION
New enclosed roller bearing steam valve gear with telescopic levers is practically noiseless.

LONG LIVED
Gardner-Denver "Slush-Proof" rods, liners and pistons—anti-friction bearings, totally enclosed steam valve gears—field proved Gardner-Denver Duo-Seat Valves.

SPECIFICATIONS

GARDNER-DENVER 20" STEAM SLUSH PUMPS		
Size	Maximum Steam Pressure	Maximum fluid pressure with Master Liners
16¼x8x20	400	1200
18 x8x20	400	1400
20 x8x20	250	1100

All sizes may be furnished with reduced sizes of liners and pistons for higher pressures.

GARDNER-DENVER "FX" POWER SLUSH PUMPS

DIRTPROOF CONSTRUCTION—Oil stop and mud stop have prevented entrance of mud and water into power end. Liner pistons and rods can be changed without opening crankcase—keeps dust and dirt out of working parts.

DEPENDABLE OPERATION—Automatic, positive flood lubrication to working parts. Gardner-Denver proved divided fluid end construction has center guided fluid valves.

SMOOTH RUNNING—Continuous tooth type herringbone gears, Timken Tapered adjustable main bearing and Hyatt roller jackshaft bearing assure smooth operation.

GARDNER-DENVER "FX" POWER SLUSH PUMPS			
Size	Capacity U. S. Gallons per minute	Maximum Pressure	B H P
7¼ x 10	450	365	100
7¼ x 12	495	430	150
7¼ x 14	577	550	200
7¾ x 16	693	575	250
7¾ x 20	774	800	400

All sizes may be furnished with reduced sizes of liners and pistons for higher pressures.

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POWER ON DEEP HOLE DRILLING JOBS—"Heavy duty" engine for use on the deepest wells and with the highest steam pressure encountered in rotary drilling.

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more than the statutory minimum on the average over a period of 30 days. On this basis, it appeared that East Texas marginal wells would be allowed to produce continuously regardless of the shutdown order.

Allowables in several of the flush fields were cut drastically to effect 7-day production, but because of the wide difference in scheduled allowables and net allowables during January when fields were closed in for 13 days, it was impossible to estimate these reductions or determine exactly where they would apply.

As a general program, however, it appeared from the order that the commission planned to allow to be produced in February about the same amount of oil that was produced during the 18 days in January when the wells were allowed to flow. While this was an inaccurate method of calculation, it appeared to be the most practical to be used in determining whether fields were increased or decreased.

Michigan to survey for proration data

The Michigan Conservation Department has engaged International Geophysics, Inc., Los Angeles, to survey certain Michigan fields for the compiling of bottom-hole pressure, fluid level and gas/oil ratio data. It marks the first time such a survey has been made.

The purpose behind the tests, officials said, is to obtain data to be used in an extensive survey of the "best methods" for prorating Michigan's lime producing fields. The State Advisory Board, certain operators and the state staff, F. R. Frye said, has frequently considered whether the flat allowable method is best suited for Michigan. Without any adequate data, Frye explained, no one could properly arrive at an answer.

The survey will be centralized on fields under proration (Walker-Tallmadge, South Overisel, New Salem and Temple) with some work in one or two other fields which may be developed up to proration this year. Key wells will be tested each month.

Arkansas February total not changed, fields are adjusted

Although in line with its action of December 18 setting allowables for Arkansas for both January and February, the Arkansas oil allowable for February was left unchanged, the Arkansas Oil and Gas Commission made some small changes in allocations of that figure. The allocation for controlled fields was raised to 42,980 barrels for February over their allotment of 41,802 barrels in January. Settled fields were cut for February from 28,198 barrels to 27,020 barrels.

Following were the February allocations given controlled fields for February: Atlanta, 900 barrels, up 300 barrels; Buckner, 2679 barrels, up 274 barrels; Dorcheat, 1200 barrels, up 900 barrels; Magnolia, 18,907 barrels, down 1307 barrels; Schuler (Jones sand), 15,000 barrels, up 3 barrels; Schuler (Reynolds lime), 2801 barrels, unchanged; and Village, 1493 barrels, up 8 barrels.

Louisiana increases February allowable to 273,253 barrels

The Louisiana Conservation Commission last week set the February daily allowable for Louisiana at 273,253 barrels, an increase of 5061 barrels over January. South Louisiana fields were hiked 5482 to 211,809 barrels and North Louisiana was cut 781 to 61,444 barrels.

North Louisiana fields were given the following allowables for February: Cotton Valley, 9704 barrels; Lisbon, 6000 barrels; Rodessa, 19,400 barrels; Shreveport, 6640 barrels; and remaining fields 19,700 barrels.

Oklahoma market demand hearing set January 30

Representatives of Oklahoma purchasers and producers will meet in the Oklahoma Corporation Commission's court room, Oklahoma City, at 10 a.m. Tuesday, January 30 to view the market demand for oil in February. A formal hearing will be held at 2 p.m. on the same day.

Compact

Interstate Oil Compact condemns Cole bill

Discussion of plans for opposing federal control of the oil industry, and the preparation of a forecast of the 1940 trend were the principal subjects before the Interstate Oil Compact Commission meeting in Wichita, Kansas, last week. Governor Leon C. Phillips of Oklahoma was named chairman of the commission for the year, and Andrew Schoeppel of Kansas was named vice chairman. They succeed Ernest O. Thompson, chairman for the past three years, and Hiram Dow.

In his introductory address Governor Payne Ratner of Kansas, voiced opposition to the Cole bill because it would vest too much power in Harold L. Ickes.

Ratner pointed out that vast progress has been made in the conservation field without the aid of the federal government other than through the Connally act. He agreed that the tax on import oil, and the estimates of demand prepared by the United States Bureau of Mines are both beneficial, but beyond this he thought additional federal control was unnecessary.

"The Cole bill is designed as a conservation measure," Ratner said, "yet the federal government is without the necessary police power to enforce such a program." He thought this plan was largely a duplication of the conservation laws which most of the states have now, and that Ickes is the only man who wants the bill.

Ratner warned the industry that the intolerable encroachments on state rights would risk the prosperity of the entire oil industry.

"The Cole bill," he said, "would stifle private initiative. Socialized government leads to dictatorship, and this is not needed in the oil industry. The Cole bill is the most serious calamity that could befall the oil industry, and will result in the regimentation of that industry."

Governor Phillips endorsed Ratner's statements, and pointed out that the states have indicated their desire to cooperate by the use of the estimates made by the United States Bureau of Mines.

Hiram Dow speaking for the governor of New Mexico, said that his state would oppose the bill.

Speaking for Texas, Railroad Commissioner Jerry Sadler "apologized" for the Texas governor, and said that no commitment had been received from him. The entire railroad commission, however, plans to attend the Washington hearings on the bill, and do all it can to oppose the measure.

Lafayette Hughes, representing Colorado, announced that it would be there to join the battle, and F. R. Frye, the Michigan representative, and O. C. Bailey, representing Arkansas, agreed with the other speakers.

Plan Opposition Campaign

Members of the compact and the representatives of the various states spent several hours in an executive session, working out details of the plan to oppose the measure at hearings in Washington. Governor Ratner said that he had joined with Governor Phillips and Governor Miles of New Mexico, in an invitation to 17 other oil producing states, asking them to join the group in opposing the bill.

Bureau Director Discusses Statistics

The statistical portion of the hearing was in large measure given over to an address by Dr. A. G. White, director of the United States Bureau of Mines, who presented his forecast for the first quarter of 1940. He explained that much of the large volume of excess gasoline now in storage resulted as a by-product of unusually high runs necessary for the production of sufficient fuel oil. Because there is an inadequate stock of the latter on hand now, and the winter has been unusually cold, he predicted as much as 100,000,000 gallons of gasoline might be in storage by March 31.

While he found this condition undesirable, he indicated that he thought it presented no serious hazard to the industry, although it was likely to result in lower prices for gasoline.

Fell Says Crude Output High

Harold Fell, speaking for the Independent Petroleum Association of America, argued that the states were allowing the production of too much crude oil. He said that the association favored a material reduction in allowables during the first quarter, and also urged that refiners curtail runs to stills.

Fell accused several of the states of producing considerably more oil than was recommended by the United States Bureau of Mines. He said that Texas during December had produced above the estimates, a statement which was promptly denied by Jerry Sadler. Fell said that his figures were from the American Petroleum Institute, and Sadler insisted that the data from sworn reports filed by the operators, was a more accurate index.

Buttram Urges More Control

Frank Buttram, president of the Independent Petroleum Association of

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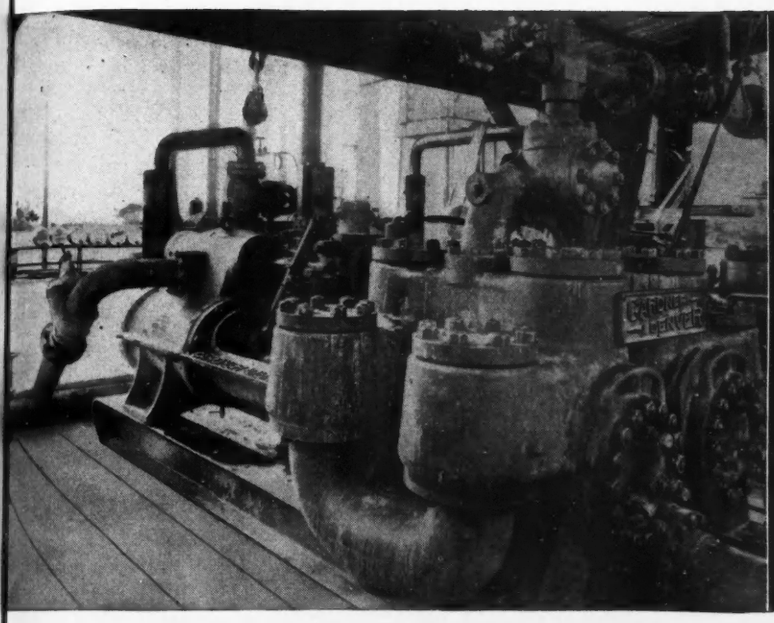

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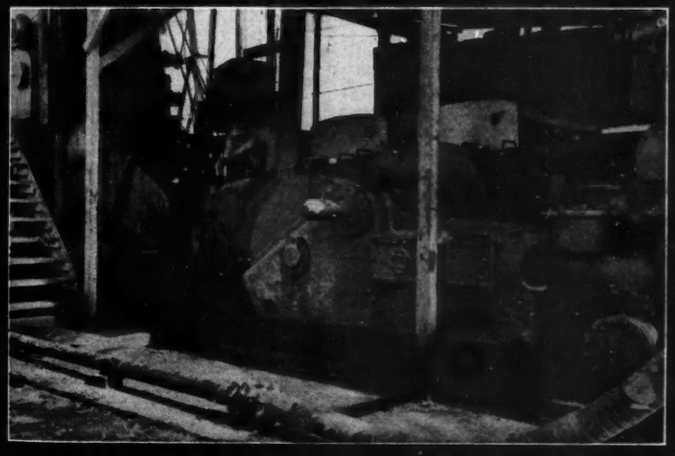
Size	Maximum Steam Pressure	Maximum fluid pressure with Master Liners
16¼x8x20	400	1200
18 x8x20	400	1400
20 x8x20	250	1100

All sizes may be furnished with reduced sizes of liners and pistons for higher pressures.

GARDNER-DENVER "FX" POWER SLUSH PUMPS



DIRTPROOF CONSTRUCTION—Oil stop and mud stop have prevented entrance of mud and water into power end. Liner pistons and rods can be changed without opening crankcase—keeps dust and dirt out of working parts.

DEPENDABLE OPERATION—Automatic, positive flood lubrication to working parts. Gardner-Denver proved divided fluid end construction has center guided fluid valves.

SMOOTH RUNNING—Continuous tooth type herringbone gears, Timken Tapered adjustable main bearing and Hyatt roller jackshaft bearing assure smooth operation.

GARDNER-DENVER "FX" POWER SLUSH PUMPS			
Size	Capacity U. S. Gallons per minute	Maximum Pressure	B H P
7¼ x 10	450	365	100
7¼ x 12	495	430	150
7¼ x 14	577	550	200
7¾ x 16	693	575	250
7¾ x 20	774	800	400

All sizes may be furnished with reduced sizes of liners and pistons for higher pressures.

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America, urged that the states exercise greater control and restraint. He insisted that the public generally is highly interested in conservation, and that unless the state regulatory bodies acted effectively, federal control was certain to ensue.

In outlining his predictions, Dr. White indicated that he thought there was little likelihood of any increase in the export market during the first quarter of 1940.

"Over-optimism concerning the export market and excess runs of gasoline have resulted in an unbalanced situation," White said. "These are the two major difficulties.

"Exports are far below the most conservative estimates. The domestic demand has been under-estimated.

"The Bureau of Mines was about 1,000,000 barrels high in its estimate of gasoline demand for the last quarter of 1939," he said, "and about 2,000,000 barrels high for the year. All our monthly figures are subject to change, but they balance out pretty well in the long run."

Export Demand

White explained that the decrease in export demand was caused by several things. Conditions are different from the last war. There has been a tremendous increase in consumption both at home and abroad. In the last war, however, little fuel oil was used, and the increased demand arose from the larger amount of gasoline needed for automobiles.

Abroad now, however, the rationing of gasoline and added taxes causing an increase in price has caused a decrease in gasoline consumption. The rising delivery costs have raised prices two or three cents per gallon. In addition, we have lost our market with the central powers of Europe. In 1939, exports were unusually high and these, in part, were military stocks.

The sources of supply available to Europe are different. Since then, oil fields have been developed in Iran, Iraq, Netherlands East Indies, Venezuela, Colombia, and Trinidad. Formerly, the United States and Mexico were the principal sources of supply. While the Dutch East Indies oil yields only 20 percent gasoline, it furnishes 30 percent Diesel oil, and the remainder is residual products.

Diesel oil, however, is the principal product needed now. The volume of lubricants and aviation gasoline needed so far is not large. The navies need fuel. The naval fuel demand now is three or four times above normal, some 30,000,000 barrels more is needed for this purpose now. The production of this fuel provides, incidentally, a sufficient supply of gasoline.

White reminded the group that there is current a report that France is working out a deal for Mexican oil. He thought this report might prove true.

He saw no reason to be optimistic about the export market this year. It may increase 5 percent or decline 10 percent. France can now process 50,000,000 barrels annually in her own plants and obtain a recovery of 41 percent. White said there was no doubt that some British purchases will be diverted to the Dutch East Indies.

Domestic Movement

In the domestic market, tanker deliveries from the Gulf Coast to the East Coast have increased, and a small increase in the price of gasoline may be expected. An increase of 7 or 8 percent in demand would tax transportation facilities, he said, and the demand for bunker fuel in the New York Harbor has caused the price to rise from 95 cents to $1.50 per barrel.

Imports of foreign crudes are 4,000,000 or 5,000,000 barrels higher than they were in 1938. These complete particularly with oils in the residual fuel market, and yield about 15 percent gasoline.

Competition by domestic refineries for this fuel market leads to an increase in gasoline stocks to unprecedented levels by March 1, 1940.

Surveying stocks, White pointed out that crude stocks have dropped 40,000,000 barrels since 1936. There are 230,000,000 barrels of crude on hand now. The plants require 110,000,000 barrels for one month's operations; another 100,000,000 barrels is needed to assure operations for 6 weeks. Because some of these stocks are not available for immediate use, 230,000,000 barrels is about the minimum figure, and production and demand may balance without considering stocks.

Refined Stocks Problem

The primary problem is refined stocks. Outside California, there is no total surplus of refined stocks, and California has little effect on the East. While gasoline stocks are too high, this is caused by the demand for fuel and the decrease in exports. The 10 or 15 million barrels of gasoline is not serious when conditions as a whole are considered, White said.

White explained that gasoline stocks could have been adjusted in the first part of 1939, because residual stocks were high then. Something could have been done in the remainder of the year, but adjustment is difficult now because so much fuel oil is needed.

Trade Treaty

Wirt Franklin opposes pacts before national committee

Opposition to continuance of the Reciprocal Tariff Act with unrestricted authority in the State Department to reduce the excise taxes on oil was voiced before the House Ways and Means Committee last week by Wirt Franklin, appearing on behalf of the Independent Petroleum Association at hearings on the extension legislation.

Reviewing the history of the oil taxes, Franklin told the committee that they have not only saved the independent operators from extinction but have returned large needed revenues to the Treasury.

"Opponents of the tax insisted that it would produce no revenue whatever," he recalled. "The United States Treasury has received $56,513,714 from these taxes up to December 1, 1939." And, he reminded the committee, "these receipts would have been double this amount had not the Senate cut in half the one-cent-per-gallon tax which this committee recommended and the House adopted."

The history of the industry has refuted the charge that the tax would increase prices to the consumer, he testified, pointing out that during the seven years of the taxes' application the prices of petroleum products have been uniformly lower than for the seven years immediately preceding.

"These excise taxes have a very direct relation to our conservation program," Franklin declared. "The regulatory bodies in oil-producing states are seeking to eliminate waste by balancing supply with demand. There are two sources of supply: domestic production and imports. The states have authority over production within their own borders; they have no such authority over imports. The states limit the domestic producer to his proportionate share of the production in a state but there is no way in which imports can be similarly limited. A flood of cheap foreign oil could at any time disastrously affect the national conservation program."

Since the expiration of the NRA code, he argued, the only effective limitation upon imports has been the possibility of action by Congress when the excise taxes came up for review every two years.

"Today," he contended, "Congress, under the interpretation placed upon the Trade Agreements Act by Assistant Secretary Grady, in his testimony, is shorn of the power to affect these imports in any way. By the inclusion of these taxes in the Venezuelan trade agreement the industry now is denied the opportunity to appeal to Congress.

"We believe that Congress should have a definite control over these imports. We also believe that Congress did not intend to give away that power when it adopted the Reciprocal Trade Agreements Act. We are still hoping that Congress will increase these excise taxes or impose some other limitation upon imports in order to encourage the domestic petroleum industry.

"By preventing the disappearance of the independents who furnish competition in the industry, Congressional control of the petroleum import question has made possible the low price paid by consumers of our products. In all the rest of the world gasoline prices are higher than they are in this country. Congress cannot afford to surrender control of the well-being of the people of the oil-producing states, as represented by the petroleum industry in these states, to the tender mercies of the importing oil companies. As we see it, that is likely to be the effect of the trade agreement recently concluded with Venezuela."

Courts

Government moving closer to anti-trust action on East Coast

Action on the long-delayed East Coast anti-trust case against the oil industry was reported this week in Washington as planned by the Department of Justice for the near future.

While the filing of a suit is said not to be imminent, further investigation of the situation is expected to be undertaken

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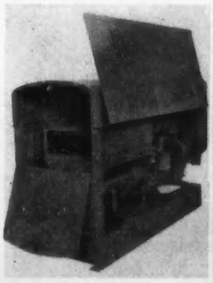

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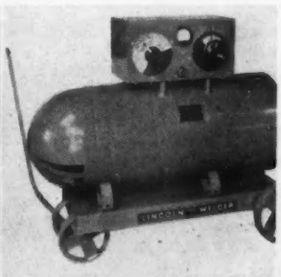

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LINCOLN *"SHIELD-ARC"* WELDERS

The *head line* for profits on the welding front

soon, as the progress of the West Coast oil case and the building materials suits release the large number of attorneys who were assigned to those matters.

Meanwhile, Department of Justice officials are hopeful that Associate Justice Frank Murphy will not feel it necessary to disqualify himself from Supreme Court reconsideration of the issues appealed from the Madison case, involving the right of a judge to "change his mind" after a jury brings in a verdict of guilty and to dismiss a complaint rather than order a new trial. The case is one of widespread importance in the administration's "trust-busting" campaign.

When the case was before the court last year, a four-to-four decision was rendered, automatically affirming the action of the Circuit Court of Appeals, and the department petitioned for a rehearing after a ninth member had been appointed to fill the vacancy occasioned by the death of Associate Justice Pierce Butler.

The East Coast situation, which independent marketers have been pressuring for several years, has been accentuated by developments since the outbreak of the European war and the enactment of the new neutrality legislation, according to complaints said to have been made to the department in Washington.

The situation of the marketers has been represented as made more precarious by the transfer of tankers from United States to Panamanian registry so that they might operate in foreign trade and the consequent shortage of vessels for coastwise transport which resulted in running the rate up from 17 cents in August to 60 cents at the present time.

East Texas pollution suit delayed by disposal survey

Probation period of 45 days was given 53 operators in the Joiner sector of the East Texas field to eliminate waste oil and salt water pollution of the tributaries of the Neches River in a compromise made in district court at Dallas January 24 in an injunction suit filed by Texas Attorney General Gerald C. Mann. Court action against the defendants was instituted last November and the agreed proposal eliminates the immediate threat of a permanent injunction being issued that would force the closing of numerous wells that yield a high percentage of water.

An agreement was signed by 44 of the defendants whereby they will pay the expense of three engineers to make a survey of the pollution sources and also to abide by their recommendations regarding the installation of adequate salt water pits, or injection wells.

The other nine defendants presented evidence they are members of the East Texas Anti-Pollution Committee, which has maintained a field staff since 1931 to prevent stream pollution. This group made a separate agreement whereby they will furnish the state with monthly reports on their waste oil and salt water production.

Legal representatives of Beaumont, Port Arthur and Port Neches, all using water from the Neches River and plaintiff intervenors in the injunction suit, refused to sign the agreement entered into by the operators and the state. The state reserves the right to start injunction proceedings against any operator that fails to comply with the anti-pollution agreement.

New Rowan & Nichols suit attacks marginal well law

A new suit attacking the East Texas proration order has been filed by Rowan & Nichols in federal court at Austin. Last year the company obtained a federal injunction increasing the allowable on its Todd "B" lease, and the new petition asked for an increase of 60 percent in the allowable for the company's Todd "A" lease.

Not only is the new order attacked as discriminatory, but Rowan & Nichols also allege that the marginal-well statute has been misinterpreted by the Texas Railroad Commission.

It is the policy of the commission to allow operators a minimum of 20 barrels on each well in East Texas, whether it is a pumper or a flowing well. Rowan & Nichols contend that this interpretation is wrong, even though it is applied exclusively to pumping wells, and that the law is void because "it bears no relation to physical waste."

The new suit asks for an injunction after a hearing before a three-judge federal court.

Associations

Oil scouts annual session at Little Rock, May 16-18

The 1940 convention of the National Oil Scouts and Land Men's Association will be at Little Rock, Arkansas, May 16-18, association officers decided at a meeting in Shreveport January 21. An attendance of 1000 is anticipated, exceeding last year's convention at Houston.

President J. C. Chisholm, The Pure Oil Company, Houston, named the following committee on convention arrangements: Jake Brandt, The Texas Company, Shreveport, chairman; Harry Norris, Sinclair Prairie Oil Company, Shreveport; N. C. Hoover, Shell Oil Company, El Dorado, Arkansas; C. H. Geiger, Standard Oil Company of Louisiana, El Dorado, Arkansas; J. B. Storey, Magnolia Petroleum Company, and Bill Cox, The Texas Company, Jackson, Mississippi.

Attending the meeting in Shreveport besides President Chisholm were the following officers: C. J. Bradley, The Texas Company, Tyler, vice president; Ralph C. Steinman, Sinclair Prairie Oil Company, Tulsa, vice president; H. L. Eversberg, Shell Oil Company, Baton Rouge, chairman executive committee; R. L. Denton, Magnolia Petroleum Company, Kilgore, Texas, secretary-treasurer; and Lee A. Adams, Sinclair Prairie Oil Company, Oklahoma City, chairman of the board of directors.

West-Central Texas body launches membership drive

Joe A. Clarke, president of the West-Central Texas Oil & Gas Association, has announced appointment of the general membership committee for 1940.

It consists of J. E. Whiteside, Brownwood, chairman; A. J. Frazier, Abilene, immediate past-president; John B. Pope of Anson; E. R. Marchman of Graham; and J. D. Sandefer, Jr., Breckenridge.

Clarke said the main responsibility of the committee will be supervision of the associate membership campaigns in all the towns of the 19 counties composing the association's territory.

Aim of the West-Central Texas Oil & Gas Association, he stressed, is for an associate membership greater than ever before, that "we can continue to show the public at large and the oil industry in particular that everybody in the district is interested in the oil man's problems."

He pointed out further that the West-Central is one of the few such organizations in the United States that has associate memberships.

Abilene, Albany, Stamford, Anson and Breckenridge last year were leaders, in proportion to their population, in obtaining members. The committee will endeavor this year to make the drive more general. Committeemen will confer soon with leaders of civic organizations, under whose sponsorship the campaigns will be conducted in the several towns.

Petroleum Sessions of A.I.M.E. meeting announced

An unusually complete program of technical, economic and historical papers is scheduled for presentation at the annual meeting of the American Institute of Mining and Metallurgical Engineers in New York, February 12 to 15.

George Corless, superintendent of the Gulf Coast division of Humble Oil & Refining Company, Houston, is scheduled to preside over the production engineering session the morning of February 13. He will be assisted by Fred Plummer, University of Texas, Austin, and M. L. Haider, Standard Oil Development Company, New York.

Papers scheduled for presentation at this Tuesday morning session include: "Viscosity Measurements," by C. R. Hocott, Humble Oil & Refining Company; "Oil, Water and Gas Flow in Sands," by M. C. Leverett and W. B. Lewis, also with the Humble; "The Eykometer, a New Device for Measurement of the Yield-Point of Clay Suspensions and Oil Well Drilling Muds," by A. George Stern, United States Bureau of Mines; "Surface Forces in Oil Production," by S. T. Yuster, Penn State College, and "Pressure Distribution About a Slotted Liner in a Producing Oil Well," by Frank G. Miller, United States Bureau of Mines.

Afternoon Session

The afternoon session February 13 will be presided over by William H. Geis, Union Oil Company, Los Angeles, assisted by C. J. Coberly, Kobe, Incorporated, Huntington Park, California. Papers scheduled for presentation at this session include "The Reduction of Water in Marginal Oil Wells," by F. B. Plummer, University of Texas; "K M A Development-Recycling," by Ed O. Bennett, Continental Oil Company; "Engineering Factors Essential to Conservation," by E. G. Dahlgren, Washington; "California Oil Umpire's Method for Determining Well Poten-

[*Continued on page 197*]

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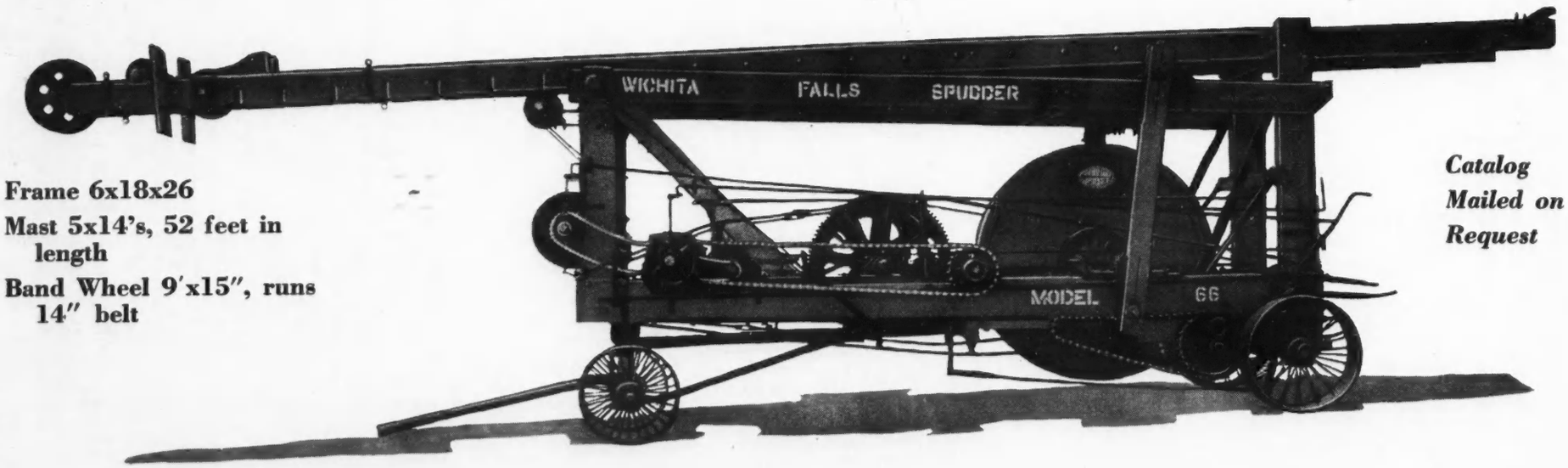

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MEN IN THE INDUSTRY'S NEWS

W. A. CLARK, consulting geologist and head of the Michigan Elevation Service, Mt. Pleasant, was elected president of the Michigan Geological Society to succeed Carl Addison, geologist for The Pure Oil Company, Saginaw. Other officers elected were: W. F. Brown, consulting geologist, Mt. Pleasant, vice president, succeeding Jed Maiebus, Gulf Refining Company, Saginaw; Harold Riggs, Grand Rapids district supervisor, Geological Survey, secretary-treasurer, succeeding Rex Grant, Lansing, Geological Survey.

W. S. RANDALL, oil producer and royalty buyer, has moved from Dallas to San Antonio, and will headquarter in the Alamo National Building.

R. A. BRANT, geologist for Atlantic Refining Company, Tulsa, discussed "The Mayes Limestone Problem" before the Shawnee Geological Society last week.

MAX S. LOY, field engineer for The Sloan and Zook Company, Bradford, Pennsylvania, is temporarily located in Tulsa while looking over the Mid-Continent.

GERALD H. WESTBY, president, Seismograph Service Corporation, Tulsa, addressed the Tulsa Geological Society January 25 on "Well Logging by the Gamma Ray."

HUBERT BALE, consulting geologist of Oklahoma City, discussed development in the Nocona-Rogers area of Montague County, Texas, before the Oklahoma City Geological Society last week.

JOHN E. ADAMS, geologist for Standard Oil Company of Texas, was elected president of the West Texas Geological Society during the annual meeting January 16 at Midland. Dana M. Secor, Skelly Oil Company, and Fred F. Kotyza, Tide Water Associated Oil Company, were chosen vice president and secretary-treasurer, respectively.

J. H. MACKEY, Texas Pipe Line Company, Henryetta, Oklahoma, was awarded the president's medal by the National Safety Council for saving the life of six-year-old Doris Howard, also of Henryetta. L. J. Whetsell, safety director for The Texas Company, Tulsa, made the award. J. K. McGoldrick, president; T. F. Reagan, superintendent; W. H. Moran, assistant superintendent, and W. A. Bohan, superintendent of telegraph and telephone for Texas Pipe Line Company, attended the ceremony.

DAVE CARLTON, executive with Humble Oil & Refining Company in Houston, was in New York on business last week.

V. R. GARFIAS, director of Cities Service Companies, New York, is expected to return from Mexico City about January 31.

ED W. OWENS, secretary-treasurer of the American Association of Petroleum Geologists, discussed association affairs before the Houston Geological Society last week.

G. H. BLANKENSHIP, independent operator of Illinois, was a Tulsa visitor over the week ending January 20.

GEORGE E. WELKER was named president of United Natural Gas Company when the company held its annual meeting last week in Oil City, Pennsylvania. Other officers chosen are: J. G. Montgomery, vice president in charge of production and geology; A. C. Burwell, vice president in charge of engineering; H. S. Rose, secretary and treasurer; M. J. Talley, assistant secretary and assistant treasurer; G. H. W. Sherman, assistant secretary, and F. P. Ginkel and J. F. Mullins, assistant treasurers.

CHARLES C. BROOKS, Victor V. Graf and Edgar R. Andrews, all with Seismograph Service Corporation, Tulsa, have returned to the United States from seismic prospecting work in the wildest parts of Java. They arrived at San Francisco aboard the S. S. President Pierce on January 18.

WALTER H. MADDOX, geologist for Standard Oil Company of California, who has been doing work in New Guinea, has returned to the United States.

COSE VAN ERKELSENS, a Netherlands geophysicist connected with De Bataafsche Petroleum Maatschappij in Papua and Sarawak, Borneo, is paying his first visit to the United States.

GEORGE M. WOOLLEY, Sinclair Prairie Oil Company, has been transferred from Oklahoma City to the Shawnee division, land department. He succeeds J. O. Snowden, who has been moved to Evansville, Indiana.

JACK RANKIN, division engineer for Sinclair Prairie Oil Company, has been transferred from Midland, Texas, to Great Bend, Kansas.

A. C. AUSTIN, Seismograph Service Corporation, has been transferred from Chandler to Shawnee, Oklahoma.

R. E. ALLEN, special representative of California Oil and Gas Association, has been spending some time in Houston in preparation for an appearance before the Cole Committee on federal oil control.

Publisher Tours South America

RAY L. DUDLEY

Ray L. Dudley, president of The Gulf Publishing Company, publisher of THE OIL WEEKLY, THE REFINER, and Composite Catalogs for the Oil Industry, sailed from New York January 26 for a tour of important oil centers of South America.

His plan is to stop at Caracas, Maracaibo, Barranquilla and Bogota for periods of sufficient length to allow him to visit nearby oil fields by airplane. Mrs. Dudley is making the tour insofar as the important centers are concerned.

His first stop will be at Caracas, capital of Venezuela, where a week or 10 days will be spent. While there he will fly to Caripito. From La Guaira the itinerary calls for a visit at Maracaibo. The next stop will be Barranquilla and then Bogota.

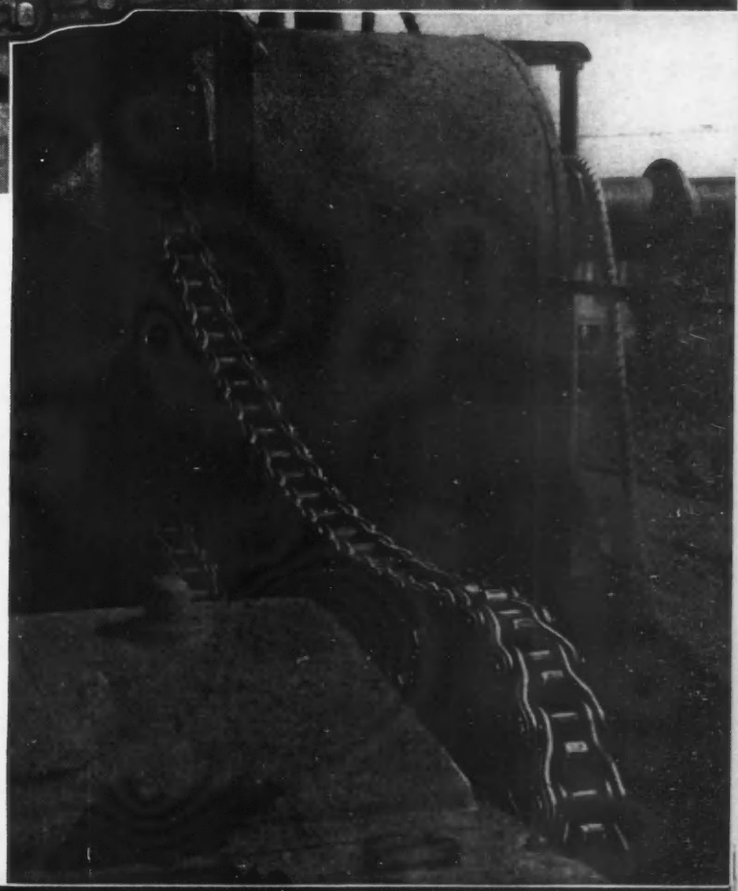
The return will be by boat, which is scheduled to arrive in New York March 19.

DIED:

HENRY COLLINGWOOD, 62, Well known producer in the Bullion district of Pennsylvania, was accidentally killed January 25 while working in the power house on his lease.

RUSSELL NEIL DRAKE, 37, son and associate of John L. Drake, pioneer Vanderburgh County, Indiana, oil operator, died at his home in Evansville January 15 after a short illness.

O. J. (DUTCH) BRAZIL, 43, superintendent of Phillips Petroleum Company's Pantex natural gasoline plant in the Texas Panhandle, died January 22 in a Borger hospital. He had worked for the company 18 years.



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LINK-BELT CHAINS

THE CHOICE OF EXPERIENCED DRILLERS

Market generally steady as gasoline decline ceases

A firmer gasoline market was the feature of the past week as the downward trend of minimum quotations, interrupted the previous week, was halted, and in one instance, reversed.

Gasoline buying remained light, with most orders applying against contracts, and few open spot sales reported. Oklahoma refineries advanced top quotations on 63-66 octane U. S. motor gasoline to 4-9/16 cents per gallon, up 1/16 cent. Reductions of ¼ to ½ cent in prices of 60-64 and 72-74 octane gasoline were reported at southern seaboard points, reflecting changes made previously at inland points.

There were no changes reported in natural gasoline prices. Sales are being made in the Group 3 at 2¼ cents a gallon, and sales f.o.b. Breckenridge at 2 cents a gallon.

Strong Demand for Fuel Oils

Demand for fuel oils, stimulated by the extreme cold, resulted in withdrawal from stocks of over 1½ million barrels of these commodities, and a comparable addition to gasoline stocks. Prices of gas oils, and distillate and residual fuel oils were unchanged except for a 5-cent reduction in top price of No. 6 oil on the Chicago market—making the range on this market 45-50 cents per barrel, and a 5-cent increase on the Gulf Coast cargo lot bunker "C" fuel which made top price $1.05, not including lighterage. Mid-Continent refiners have reported that shipping instructions for light fuel oils are coming in large volume, with most sales made against contract. New York brokers reported demand for all burning oils up 40 percent from last year, with tankers unavailable at almost any price.

Kerosene prices underwent adjustment with large increases in demand. The Eastern seaboard was the scene of much kerosene movement, with some refiners forced to buy to meet their commitments. Pennsylvania refiners advanced prices for 45 water white grade to 4¾ cents. Sinclair Refining Company has advanced quotations on light fuel oils and kerosene from ¼ to ½ cent at seaboard points north of Charleston.

The call for lubricants, unusually strong in the past few months, wavered slightly as export activity subsided. Bright stocks dropped a cent a gallon on the Eastern seaboard, while white crude scale wax dipped ¼ cent per pound.

PRODUCT PRICES

	Range Last Week (Cents a gal.)		Changes from Week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
62 Octane and Under	3⅞	4¼	...	...
63-66 Octane	4⅛	4-9/16	...	+1/16
67-69 Octane	4⅜	4⅞	...	...
70-72 Octane	4⅝	5⅛	...	...
Mid-Western Tank Car:				
62 Octane and Under	3⅞	4¼	...	...
63-66 Octane	4⅛	4¼	...	...
67-69 Octane	4⅜	4⅞	...	...
70-72 Octane	4⅝	5⅛	...	...
NATURAL GASOLINE				
Grade 26-70:				
F. O. B. Group 3	2¼	...	...	...
F. O. B. Breckenridge, Texas	2	...	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	3⅝	4¼	...	...
42-44 water white	3¾	4⅝	...	...
Mid-Western Tank Car:				
41-43 water white	3⅝	4¼	...	...
42-44 water white	3¾	4⅝	...	...
FUEL OILS				
Mid-Western Tank Car:				
Range Oil	3⅝	3⅞	...	...
Gas and Fuel Oils:				
No. 1 Prime White	3⅝	3¾	...	...
No. 1 Straw	3½	...	...	...
No. 2 Straw	3⅜	...	...	...
No. 3 Straw	3¼	...	...	...
No. 5 (per bbl.)	65	70	...	...
No. 6 (per bbl.)	45	50	...	—5

Protracted cold aggravates gasoline stock situation

Severe weather conditions prevailing in most of the nation for the past two weeks have placed the industry at a further disadvantage in any attempt to balance refinery activity with current demand. In discouraging automotive consumption of gasoline, the inclement weather has caused additions to already overlarge stocks.

A strong call for gas oils, and distillate and residual fuel oils at a time when stocks of these commodities were low, has allowed little cessation in crude processing and has caused manufacture of much unneeded gasoline during the week ended January 20. While the weather was largely responsible for this unbalance in refinery activity, it was of benefit in reducing the total storage of refined products by a slight amount.

Production Gains—Runs Diminish

Crude oil production in the United States, as estimated by the American Petroleum Institute for the week ended January 20, averaged 3,637,450 barrels daily, a level 45,250 barrels above that of the week before. The rise increased the margin over Bureau of Mines estimate of demand to 67,950 barrels, with no prospect that this excess will not be progressively enlarged from week to week in the near future. Illinois, dormant through the winter, gave warning of behavior in the summer by increasing output 29,300 barrels to 366,700 barrels daily. National production at its present level is 11.4 percent above that in the corresponding week a year ago.

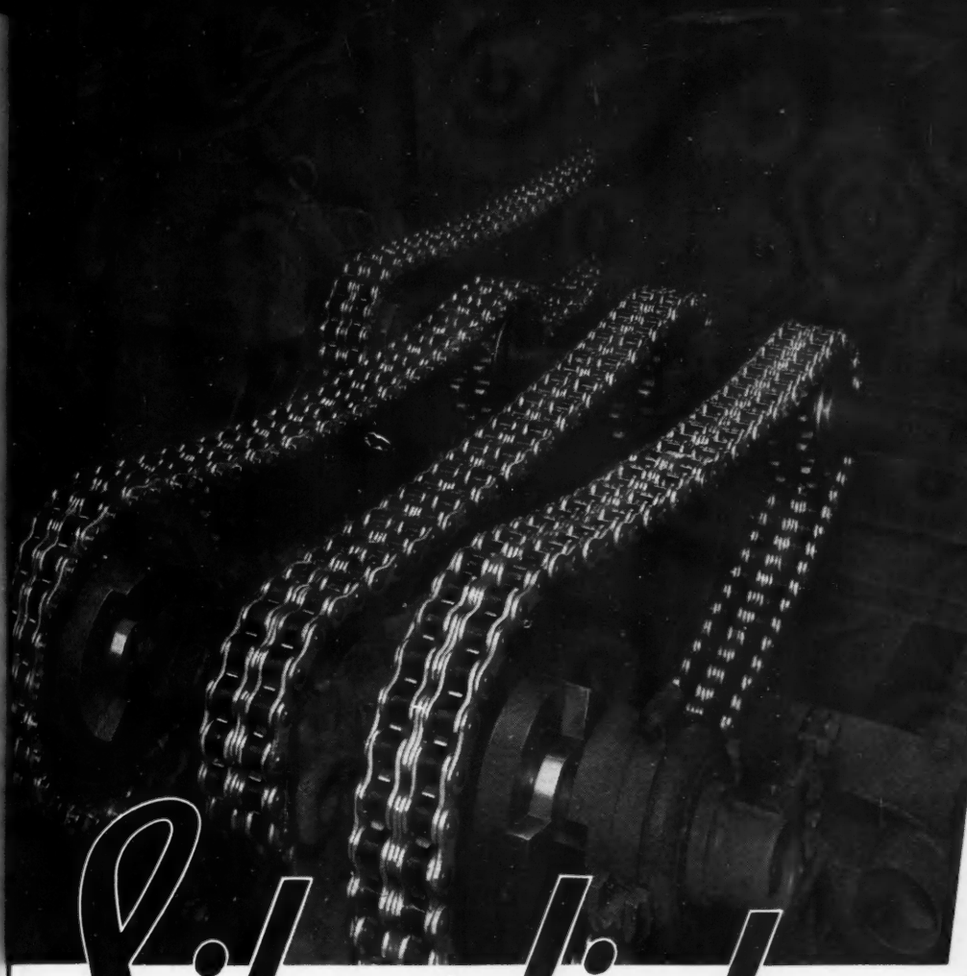
Runs to stills were cut 10,000 barrels daily to bring the average to 3,310,000 barrels, where it was 6 percent greater than a year ago. The present processing rate is the lowest since last winter, and if maintained will offer a solution to the problem of excessive gasoline stocks. Present crude inventories are close to the lowest workable level and capable of absorbing 20,000,000 barrels of excess production without approaching their dangerous level prior to the

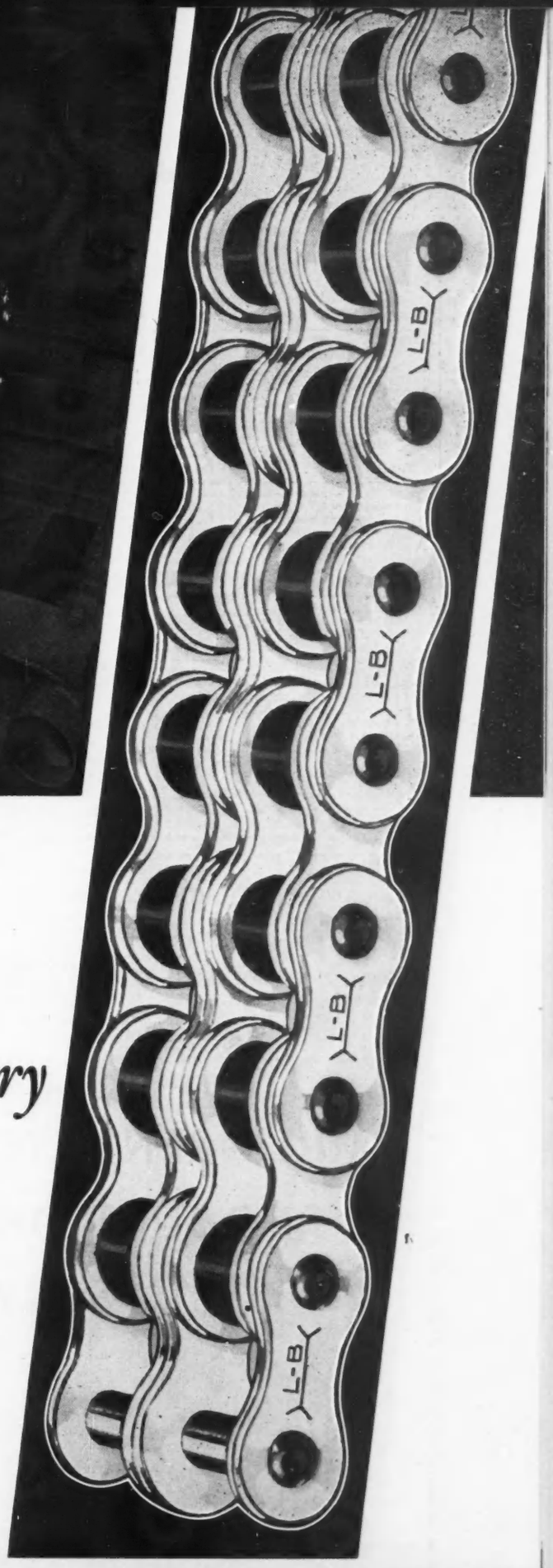
Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1937:						
August 28	[5]3,731,450	3,425,000	309,506,000	[4]6,997,000	112,111,000	
September 25	3,666,300	[5]3,455,000	307,974,000	[6]5,620,000	116,472,000	
1938:						
March 19	3,433,550	3,080,000	306,380,000	[1]93,192,000	122,067,000	
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[2]269,509,000	68,687,000	32,068,000	118,711,000
December 31	3,201,450	3,115,000	273,024,000	71,695,000	29,082,000	115,741,000
1939:						
January 28	3,248,250	3,235,000	271,763,0	77,279,000	16,583,000	112,766,000
February 25	3,328,850	3,185,000	271,758,000	84,597,000	23,419,000	110,252,000
March 25	3,382,350	3,225,000	273,915,000	87,561,000	21,487,000	107,551,000
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
May 27	3,585,250	3,405,000	278,289,000	84,152,000	26,992,000	109,386,000
June 24	3,452,500	3,430,000	272,297,000	81,733,000	30,239,000	111,726,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[3]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[1]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[3]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 25	3,818,100	3,510,000	231,811,000	75,595,000	38,527,000	112,106,000
December 2	3,289,200	3,480,000	234,161,000	76,365,000	37,955,000	110,383,000
December 9	3,827,350	3,460,000	232,016,000	77,196,000	37,087,000	109,291,000
December 16	3,865,750	3,415,000	232,615,000	78,158,000	36,285,000	107,977,000
December 23	3,867,900	3,395,000	236,038,000	78,707,000	35,068,000	107,061,000
December 30	3,545,000	3,445,000	237,742,000	80,985,000	34,184,000	106,680,000
1940:						
January 6	3,584,450	3,370,000	238,581,000	82,002,000	32,183,000	105,247,000
January 13	3,592,200	3,520,000	238,249,000	84,326,000	30,326,000	104,712,000
January 20, 1940	3,637,450	3,510,000	.....	85,180,000	28,888,000	104,582,000
January 21, 1939	3,264,450	3,310,000	271,110,000	76,452,000	33,819,000	116,985,000
Change in past year	+11.4%	+6.0%	—12.1%	+11.4%	—14.9%	—10.8%

[1] All time peak. [2] Peak for 1939. [3] Lowest since April, 1922. [4] Stocks, January 14, 1939. [5] Peak prior to 1939. [6] Lowest for year. [7] Lowest since October, 1922, due to the shutdown of six Mid-Continent states.





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United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (January)	State Allowable in Jan.	BARRELS DAILY FOR WEEK ENDED Jan. 27	Jan. 20
TEXAS—				
Texas Panhandle			82,750	86,450
North Texas			83,000	79,700
West Central Texas			32,050	32,050
West Texas			245,150	244,150
East Central Texas			86,700	85,450
East Texas Field			397,250	397,250
South Texas			212,100	207,600
Texas Gulf Coast			236,500	233,450
Total Texas	1,411,000	1,376,000*	1,375,500	1,366,100
CALIFORNIA—				
Long Beach			47,200	44,100
Midway-Sunset			57,500	59,700
Kettleman Hills			45,900	48,600
Wilmington			83,200	85,500
Others			374,400	380,100
Total California	593,900	599,000†	608,200	618,000
OKLAHOMA—				
Oklahoma City			100,100	103,000
Seminole Area			104,115	109,750
Others			225,860	219,750
Total Oklahoma	433,900	433,900	430,075	432,500
ILLINOIS—				
Salem			210,100	196,100
Louden			76,750	68,500
Other New Pools			70,100	65,200
Old Pools			8,000	7,850
Total Illinois	314,800		364,950	337,650

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (January)	State Allowable in Jan.	BARRELS DAILY FOR WEEK ENDED Jan. 27	Jan. 20
LOUISIANA—				
North Louisiana			69,250	68,800
South Louisiana			202,300	200,100
Total Louisiana	254,200	268,192	271,550	268,900
KANSAS	160,600	160,600	167,750	176,650
NEW MEXICO	101,900	101,900	109,250	108,600
EASTERN STATES—				
Pennsylvania Grade			79,250	78,950
Others, Eastern			24,000	23,050
Total Eastern States	100,700		103,250	102,000
MOUNTAIN STATES—				
Wyoming	58,700		60,250	66,200
Montana	15,400		17,300	17,100
Colorado	3,900		4,000	4,000
Total Mountain States	78,000		81,550	87,300
MICHIGAN	61,000	65,000	66,200	67,250
ARKANSAS	59,700	71,200	70,400	69,650
MISSISSIPPI			4,500	3,200
NEBRASKA			100	100
‡Total 8 Prorated States	3,076,200	3,079,793	3,099,925	3,107,650
Total United States	3,569,500		3,654,275	3,637,900

* Daily average at January 1st, considering Saturday-Sunday-Wednesday shutdowns, and various exemptions.
† Recommendation of Central Committee of California Oil Producers.
‡ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Michigan, Arkansas.

August shutdown. Chief difficulty in a program of reduced runs to stills is that of supplying gas oils and distillates from present depleted stocks.

Gasoline Production and Stocks

Encouraging features of the week's statistical changes were a decrease of 191,000 barrels in gasoline production from the week prior, and a smaller addition to gasoline stocks than in the preceding few weeks. However, stocks at their present level of 85,180 barrels are near the point where an excessive addition in one week will place them above the 1939 peak of 87,769,000 barrels, which was not attained last year until early April. Present inventory is 11.4 percent above that of a year ago.

Fuel Oils

Cold weather, coupled with brisk industrial activity, caused a reduction in gas oil and distillate and residual fuel oil stocks of 1,568,000 barrels. Gas oils and distillate fuels were decreased 1,438,000 barrels to 28,888,000 barrels—14.9 percent below a year ago; while residual fuel oil stocks were cut only 130,000 barrels to 104,582,000 barrels—10.8 percent under last year's level. Demand for fuel oils is running appreciably higher than last year, 10 percent for the residual oils. This fact and the depleted stocks are the crux of the industry's present operational problem.

Crude oil stocks as reported by the Bureau of Mines for the week ended January 13 fell 332,000 barrels to 238,439 barrels. This drop is the reflection of heightened refinery activity for that week. Present crude oil inventory is 12.1 percent under that of a year ago.

MILLS BENNETT
PRODUCTION
COMPANY

GULF BUILDING--HOUSTON, TEXAS

Failure to use geophysics slowing Australian search

Exploratory efforts in Australia are being slowed down by reticence on the part of the government, which partially subsidizes such efforts, to employ geophysics, according to word from Melbourne, Victoria.

It is charged in some quarters that drilling has failed fairly generally because the locations, in most instances approved by the Oil Advisory Committee of the government, were selected without sufficient geological knowledge of the structures they were supposed to have explored.

A.I.M.E.

[*Continued from page 190*]

tials from Sub-surface Pressure Data," by E. G. Trostel, Union Oil Company, and "Geochemical Prospecting (Soil Analysis)," by Eugene McDermott, Geophysical Service, Incorporated.

Foreign and domestic production will be given symposium treatment February 14 under the chairmanship of James Terry Duce, The Texas Company, New York, who will be assisted by Basil B. Zavoico, Chase National Bank, New York, and Dr. W. P. Haynes, Standard Oil Company of New Jersey, New York. Practically every foreign country listed among oil producing nations is scheduled to be represented by a paper, as are all states of the union.

Foreign Papers

Countries and states tentatively on the program, together with those held responsible for presentation of papers in person or by proxy, follow: Argentina, Mario L. Villa, Y.P.F.; Australia, Dr. W. G. Woolnough, Commonwealth Government; Bahrein, J. O. Nomland; Bolivia, J. M. Reyes, Bolivian, Y.P.F.; Burma, L. D. Stamp, University of London; Canada, G. S. Hume, Geological Survey of Canada; Cuba, Roy Dickerson, Atlantic Refining Company; Egypt, E. Escobar P.; France and Colonies, author unannounced; Germany, Walter Kauenhowen; Great Britain, D'Arcy Exploration Company; Iran, Anglo-Iranian Oil Company; Iraq, Ben B. Cox, Socony-Vacuum Oil Company; Mexico, V. R. Garfias, Cities Service Company; Netherlands Indies, B. H. Van der Linden; Peru, Oliver B. Hopkins, Imperial Oil, Limited; Poland, Carol Bohdanowicz; Rumania, author unannounced; Russia, Basil Zavoico, Chase National Bank; Trinidad, P. E. T. O'Connor, Antilles Petroleum Company; Venezuela, author unannounced.

Colorado, Utah and Wyoming, C. E. Shoenfelt, Petroleum Information, Incorporated; Kentucky, Coleman D. Hunter, Kentucky West Virginia Gas Company; Ohio, J. E. Schaefer, East Ohio Gas Company; Tennessee, Kendall E. Born, Tennessee Department of Conservation; West Virginia, David B. Reger.

Wednesday afternoon's session will be a continuation of the production symposium, with Zavoico acting as chairman and M. T. Halbouty as vice chairman. Papers scheduled for presentation then include: South Arkansas, W. B. Weeks, Phillips Petroleum Company; California, V. H. Wilhelm, The Texas Company; Illinois, A. H. Bell, Illinois State Geological Survey; Indiana, Ralph Esary and G. F. Fix, state department of conservation; Kansas, W. A. ver Wiebe, University of Wichita; North Louisiana, H. K. Shearer, The Hunter Company; South Louisiana, J. Brian Eby; Michigan, Theron Wasson, Pure Oil Company; Mississippi, H. M. Morse, state oil and gas supervisor; Missouri, Frank Green, state geological survey; New Mexico, A. Andreas, state geological survey; New York, D. H. Newland, state geological survey; Oklahoma, T. G. Brownfield, Carter Oil Company; South Pennsylvania, John T. Galey; East Texas, D. V. Carter, Magnolia Petroleum Company; Texas Gulf Coast, Perry Olcott, Humble Oil & Refining Company; North Texas, L. MacNaughton, MacNaughton & DeGolyer; North Central Texas, H. W. Imholz; Texas Panhandle, Henry Rogatz; South Texas, M. T. Halbouty; and West Texas, Peter B. Gregory, Yates Pool Engineering Commission.

Economics Session

Lyon F. Terry of the department of petroleum economics, Chase National Bank, New York, assisted by Sydney B. Swensrud, Standard Oil Company of Ohio, and W. B. Case, Shell Union Oil Corporation, are scheduled to conduct the economics section meeting February 15. Plans call for presentation of seven papers at this meeting. They are: "The Place of the Petroleum Industry in the American Economy," by John D. Gill, director, Atlantic Refining Company; "World Consumption of Petroleum and Related Fuels During 1939," by V. R. Garfias, director, Cities Service Company; "Tank Steamer Transportation of Petroleum," by Garfias also; "The National Interest in Petroleum," by John W. Frey, director of conservation division of the department of the interior; "The Character and Functions of the Monthly Forecasts of Demand Prepared by the Bureau of Mines," by A. G. White, chief economist, petroleum economics division, Bureau of Mines; "The Valuation of Oil and Natural Gas Properties," by Lyon F. Terry.

Details concerning the executive committee's meeting and the petroleum division dinner will be announced later by the institute.

Preliminary program made for Wichita A.P.I. spring meeting

The American Petroleum Institute Spring Meeting of the Mid-Continent District Division of Production is to be held in Wichita, Kansas, March 14 and 15.

Governor Payne Ratner will talk in regard to Kansas oil problems. Other papers to be delivered are a talk on the Cole Bill, Foremanship, Oil Meters of the Positive Displacement Type in Production Work, Cable Tool Drilling, Panhandle Texas Well-Spacing Problems, Panhandle Well - Completion Problems, Water Flooding in Southeastern Kansas and Northeastern Oklahoma, Conservation in the Production of Petroleum, Secondary Recoveries in the Oklahoma City Pool, Corrosion, Salt-Water-Disposal Problems in Fitts, Controlled Oil Withdrawal Rates, Recent Developments in Oil-Well Cementing and a moving picture entitled Oil Well Cement; Pumping Problems in the Mid-Continent Area, Larger Gas Fields in Kansas and Oil Financing. The authors are to be announced.

The general committee is composed of H. E. Miller, chairman, Lario Oil & Gas Company; R. E. Adams, Cities Service Oil Company; L. R. Pickerill, Tom Johnson, Inc.; A. S. Ritchie, McPherson Drilling Company; H. W. Cardwell, Cardwell Manufacturing Company, and Mrs. G. A. Holloway.

The publicity committee is composed of R. E. Adams, chairman, Cities Service Oil Company, Wichita, Kansas; G. A. Holloway, Lee C. Moore & Company, Inc., Wichita, Kansas; John Allison, McPherson, Kansas; Fred Shelton, Phillips Petroleum Company, Great Bend, Kansas; H. E. Wamsley, Skelly Oil Company, Hutchinson, Kansas; C. D. Kerr, Stanolind Oil & Gas Company, Ellinwood, Kansas; J. A. Kornfeld, Wichita Beacon; Kenneth Sauer, Wichita Eagle; C. V. Barrows, Daily Oklahoman, Oklahoma City; P. S. Hedrick, Tulsa World, Tulsa; N. D. Bartlett, Amarillo Globe Democrat, Amarillo; Ross Beech, Producers Gas Company, Hays, Kansas; Herb Goodpastor, Kerlyn Oil Company, Oklahoma City; J. A. Cleverley, Cities Service Oil Company, Russell, Kansas; Ted Gore, Central Petroleum Company, Wichita; H. W. Ladd, Stanolind Oil & Gas Company, Tulsa; Joe A. Hale, The Texas

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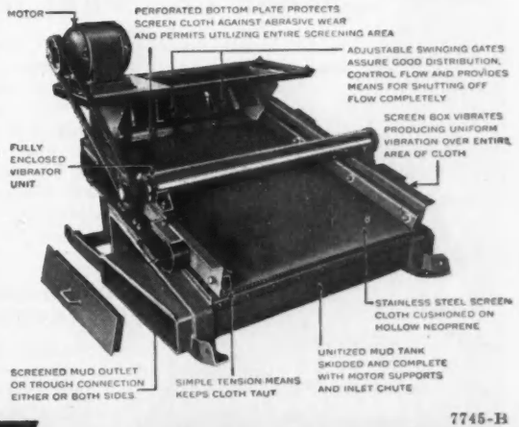
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SCREENED MUD OUTLET OR TROUGH CONNECTION EITHER OR BOTH SIDES

7745-B

LINK-BELT *Vibrating* SCREEN

Company, Tulsa; John Sparks, Fort Worth Star Telegram, and oil editor, Dallas Daily News.

On Thursday evening March 14 a stag buffet dinner has been arranged. The annual dinner is to be held on the following evening. A ladies' luncheon and bridge will be given Friday.

The Allis Hotel is convention headquarters. Further information may be secured from members of the publicity committee.

Tom Graham hearing

The Texas Railroad Commission has scheduled a hearing for February 9, at Austin, on an application for a higher allowable in the Tom Graham field, Jim Wells County. The hearing was set originally for January 29.

PIPE LINE NEWS

To construct 320-mile northwest crude line

Williams Brothers Corporation, Tulsa, has been awarded contract to construct a 320-mile crude oil pipe line from Cut Bank, Montana, to Spokane, Washington, for The Inland Empire Refineries, Inc., Spokane.

W. A. Bechtel Company, San Francisco, also received contract for a portion of the project. The line will include 313 miles of 6-inch pipe, with the remainder of 4-inch. Two pump stations will be required, but exact locations are yet to be determined. Estimated cost of the project is $2,500,000.

To loop Gulf Coast crude line

The Texas Pipe Line Company is constructing a 23-mile 8-inch loop line paralleling its 6-inch line from Bay City to West Columbia, Texas. The company is also laying 5 miles of 6-inch line to connect its Bay City-West Columbia line to Hamman field, Matagorda County. This is the first pipe line outlet for the field. The crude was formerly shipped in tank cars.

Rio Grande Valley system enlarged

Valley Pipe Line Company has started running oil through its enlarged Rio Grande Valley system comprising 75 miles of feeder lines into fields of Starr and Brooks counties. The line connects with the main trunk outlet to Port Isabel and deep water.

The feeders serve the Cuevitas, Sun and Ricaby areas of Starr County, and the Alta Mesa pool in Brooks County. Oil is delivered to Coastal Refineries, Inc., at Port Isabel.

Sohio to construct 240-mile crude line

Sohio Pipe Line Company has awarded contracts for construction of a 12-inch 240-mile crude oil line from Stoy, Crawford County, Illinois, to Lima, Ohio. Sheehan Pipe Line Construction Company, Tulsa, will lay 70 miles on the west end and 50 miles on the east end, while Truman & Smith, El Dorado, Arkansas, will construct the middle portion. Work will start about February 1, with completion expected about April 1.

The line, which will have a capacity of 60,000 barrels daily, will parallel the Tidal Pipe Line Company's eastern system.

Seek to halt gasoline line construction

Southwestern Pipe Line Company last week was named defendant in an injunction suit filed by the Atlanta and West Point Railroad to prevent the company from constructing a gasoline line across a right-of-way near Red Oak, Georgia.

The line is being built from St. Joe, Florida, to Chattanooga, Tennessee. Williams Brothers Corporation, Tulsa, have the contract.

Texas commission issues new order on gas/oil ratio tests

The Texas Railroad Commission has issued a new order governing gas/oil ratio tests. The order is restricted to three classes of fields: those in which ratios are in excess of the maximum set in field rules, those where the field rules allow ratios in excess of 2000/1, and those where one or more wells are given lower allowables because of the high gas/oil ratios.

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This Continental dependability has also been definitely proved to the Stewart Oil Company, owner and operator of the above equipment which has been active in the Michigan Field. Regardless of your requirements you can always obtain a Continental Red Seal Engine to do the job. Consistent power, consistent economy, and consistent satisfaction have made the Continental Red Seal famous throughout the world.
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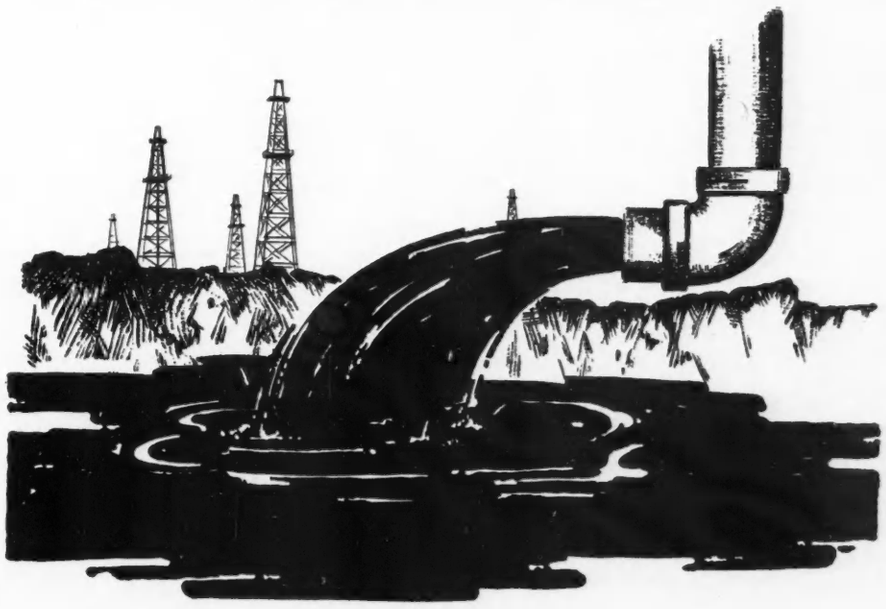

Starting the Flow

JUST as it is often necessary to shoot a well in order to get a profitable producer, proper financing is often required to start the flow of oil wealth. However, expert technical knowledge is just as necessary to oil financing as it is to the handling of completions. Through long and extensive service to the petroleum industry we have developed a thorough familiarity with the needs of the industry. Our technical men and engineers are constantly available to you.

You Are Cordially Invited to
Discuss Your Loan Requirements

REPUBLIC NATIONAL BANK
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MEMBER FEDERAL DEPOSIT INSURANCE CORP.

WORLD-WIDE DEVELOPMENTS

Edited by WM. V. GROSS, Associate Editor

War

Germans reported opening oil fields in Polish Soviet territory

Germany has denied that services of Nazi military and technical advisers will be placed at the disposal of Russia for use in the campaign against Finland in return for Russia allowing the Germans to operate certain Galician oil fields of Poland.

Polish officials in Rumania insisted, however, that three or four divisions of German troops were in former Polish territory taken over by the Russians and that Germany had taken over the Galician oil fields of what is currently referred to as Soviet Poland with the permission of the Soviets.

The Polish fighters are said to have plugged the oil wells with a composition material that cannot be drilled through. The Germans are reported preparing to drill alongside the old producers.

Allies fear German oil take from Rumania to be increased

A strong possibility that England fears oil exports from Rumania to Germany may increase substantially above the currently reported rate of 1,000,000 tons annually was seen in some circles as the real cause for the declaration by Sir Reginald Hoare, British ambassador to Rumania, to officials of the latter nation that England and France sincerely hope nothing will happen to impair the cordial relations between the allies and Rumania, which they have guaranteed to protect against aggression.

Expression of Hoare's wish followed close on the heels of King Carol's decree of January 17 which established state control over oil production and exports. Operation of such a decree possibly could result in preventing English and French interests from exercising their superior credit facilities in buying up most of Rumania's export oil and keeping it from going to Germany.

The allies are not deeply concerned over current deliveries of crude to Germany, but they are more worried about what might happen in the early spring when the melting of the frozen Danube will allow resumption of barge shipments. Practically all of January and February shipments from Rumania to Germany will have to go by tank cars, of which there are too few available to satisfy military emergency plans. But this does not alleviate the unpleasantness of contemplating a situation later on where oil companies capitalized largely by British and French money might, under King Carol's decree, be forced to trade extensively with the enemy, which already is the greatest individual purchaser of Rumanian crude.

Rumania is continually subjected to ever increasing pressure from Germany, which definitely desires more oil from Rumania. Press dispatches from Bucharest January 23 stated England and France had warned Rumania that grave complications might follow any attempt to compel British and French oil companies in Rumania to furnish oil for Germany.

Mexico

Mexican workers accuse bosses of inefficiency

Accusations by Cortes Herrera, general manager of Petroleos Mexicanos, that the workers were responsible for failure of the organization to function profitably and efficiently, boomeranged in the form of a series of counter accusations against him by a Mexico City union. Failure of the organization was put at Herrera's door because of his refusal to discharge department heads responsible for the trouble.

The workers, whom Herrera had charged with active and passive resistance and with theft in some cases, in turn accused Herrera's management with paying high salaries to unqualified favorite employees, whereas the rank and file of workers is receiving less than the Supreme Court of Mexico stipulated was the minimum they were to be paid. They blamed Herrera for failure to provide materials which would have kept certain wells on production. Referring to his technical appointees' the workers claimed that production in a certain field actually showed an increase when the engineer appointees were away from the field.

The lengthy reply to Herrera's accusations closed with a demand that all employees and officials drawing excessive salaries, including Herrera and all employees hired since expropriation, be discharged.

According to Mexico City advice, the answer of Herrera to the union's charges consists of denial he had received a retroactive salary increase of 18,000 pesos for himself, one of the things they had accused him of ordering, and declared that production had increased since March 18, 1938.

Herrera was said to have had no experience in the oil business prior to his appointment.

Canada

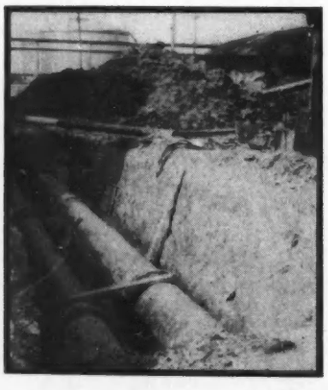
Canadian production shows increase in 1939

Total production of crude oil in Canada during 1939 is estimated by the Dominion Bureau of Statistics at Ottawa to be 7,743,300 barrels, as against 6,966,084 barrels in 1938.

Preliminary estimates divide the 1939 production by provinces as follows: New Brunswick, 18,800 barrels; Ontario, 207,500 barrels; Alberta, 7,500,000 barrels, and Northwest Territories, 17,000 barrels, all except the latter province showing increases.

Alberta's leading production of an estimated 7,500,000 barrels for 1939 represents an increase of 748,688 barrels over the 6,751,312 barrels produced in 1938. Turner Valley continues to produce most of Alberta's oil, having been credited with 6,703,548 barrels in 1938, while the yield for 1939, not estimated in the Bureau's figures, is understood to be higher.

MONO-CAST DOUBLEX SIMPLEX PIPE SERVES LARGE MIDWESTERN REFINERY



TO INSURE against corrosion, these twin lines of Mono-Cast Doublex Simplex Pipe were recently installed by one of America's largest refining companies in one of their midwestern plants. More than 7,000,000 feet of Mono-Cast Doublex Simplex Pipe are now giving highly satisfactory service in the transmission and distribution of oil, gas, gasoline, water, etc., through the United States and in foreign countries. Write for literature.

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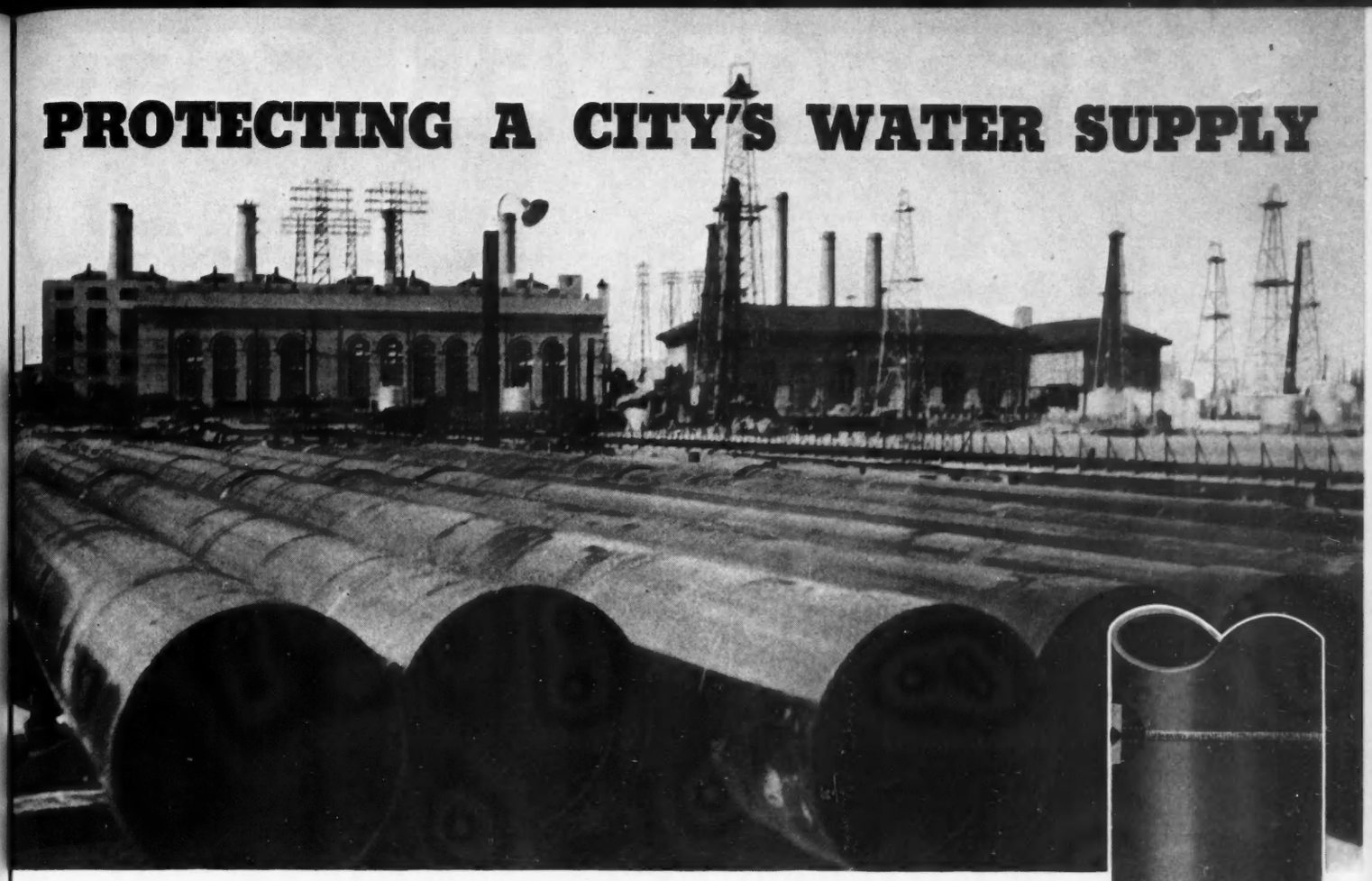

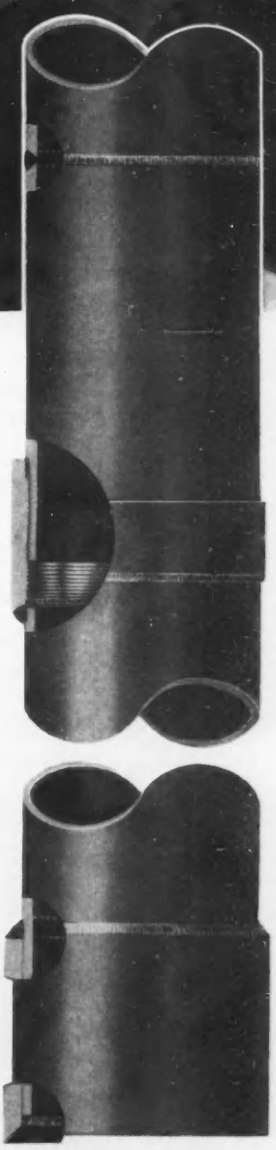

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Surface pipe requirements on this major city drilling program called for every possible safeguard against pollution of shallow water sands. Extensive investigation, including every feature of design and construction, safety factor, utility, performance records and cost, put WYATT'S Welded Casing on the job. Furnished either with bell and spigot for welding in the hole or threaded and coupled casing, this WYATT-made pipe not only assures maximum cased hole protection . . . but assures long-time dividends on the buyer's investment.

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Above: Wyatt 18⅝" 76-lb. casing racked on location. Inset (right): Sectional drawing shows shop welds. Below: Note exact 40' lengths.

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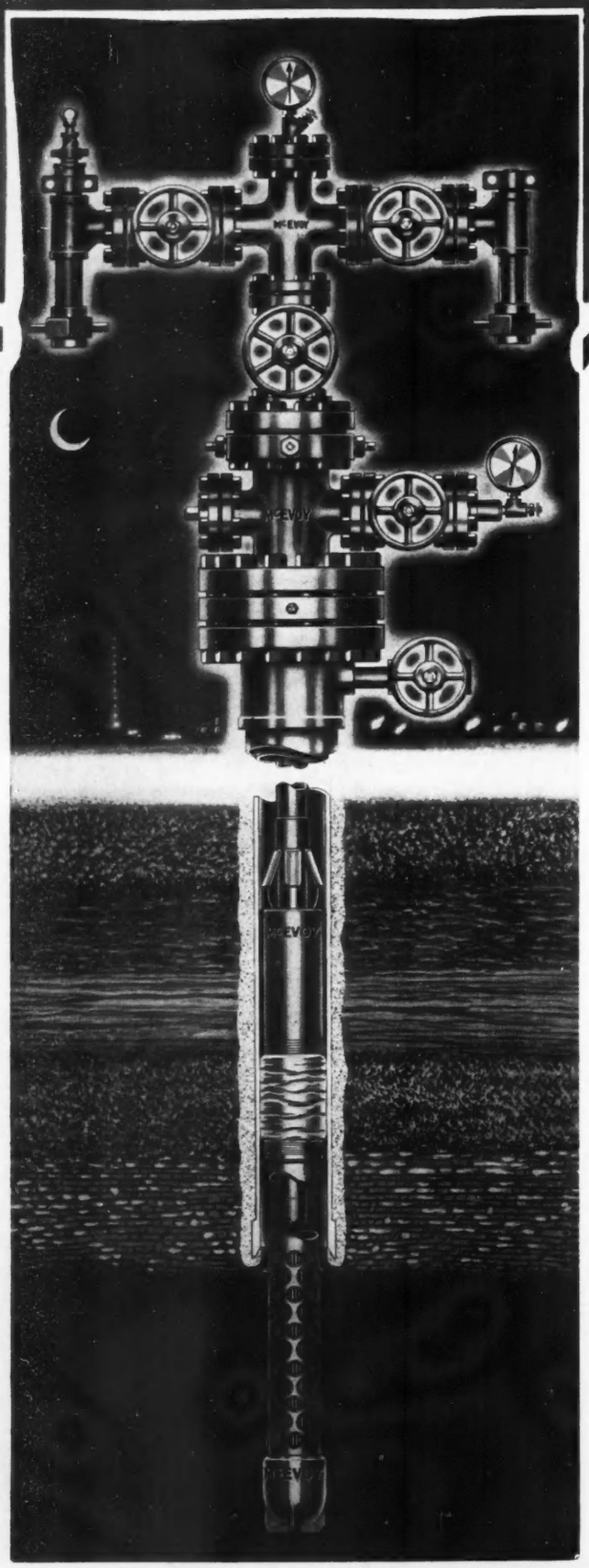

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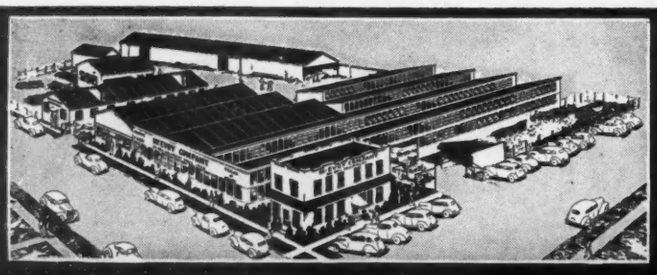

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U. S. FIELD OPERATIONS

A WABASH COUNTY wildcat showed for Illinois' first new field of 1940 when it flowed 18 barrels natural from Cypress sand. Two other wildcats set casing to test promising shows. An Indiana well promised a 1½-mile extension to Waltersburg sand production in the Griffin area of Gibson County. An important Pike County wildcat resumed drilling below 4200 feet.

A Wharton County wildcat provided a new gas and distillate field for the Texas Gulf Coast when perforated in Frio sands at 4771 feet after drilling to 5500 feet. The Frio sand is proving attractive for exploration through the Mirando trend in the Laredo area, South Texas. A Colorado County wildcat failed on its first test of the Wilcox. Wildcats were showing for small producers in Atascosa and Guadalupe counties. Two locations quickly followed the first Strawn multiple pay show in Southwestern Clay County, North Texas, while the deep lime continues to attract operators to Archer County. A Stone County wildcat had a good show of green oil in sandy-lime of the Strawn section in West Texas.

A Barton County wildcat had 800 feet of oil in hole and indicated a new Kansas Lansing lime pool. Three pools received extensions, two in Russell County and one in Rice County.

Washita County, Oklahoma, will get its second deep test; the first try was unsuccessful at 14,582 feet. Gassers opened two new pools, one in Pawnee County and the other in Okmulgee County.

Illinois

Prospective pool opener near completion; 2 tests set casing

Centralia, Ill.—O'Mera Brothers' J. C. Utter 1, SE SE NE 17-1s-12w, ½ mile north of Mt. Carmel, Wabash County, showed for a pool opener when it pumped 18 barrels natural in 24 hours from Cypress sand at 1050 feet after plugging back from a dry McClosky. It is to be shot, and if successfully completed will open the state's first 1940 oil pool.

Two wildcat tests set casing.

In Gallatin County, Angle & Eason's Duffy 1, NE NW NW 25-8s-9e, set 5½-inch at 2930 feet to test Rosiclaire pay at 2803-13 feet. Casing will be gun perforated to test the first commercial looking well in the county below the Waltersburg sand. It topped the Vienna at 2076 feet, Tar Springs at 2133 feet, cored 2141-56 feet, and recovered 6 feet oil sand and 5 feet of shaley sand and 4 more feet of sand with some oil, topped Glen Dean at 2190 feet, Hardinsburg at 2255 feet, Cypress sand at 2515 feet, Renault lime at 2715 feet, St. Genevieve at 2800 feet, cored 2798-2814 feet, and recovered 2 feet of oolitic lime with good oil saturation and 10 to 12 feet of porous Rosiclaire. Bottom was at 3007 feet.

In the extreme northern part of Wabash County, immediately south of the Lawrence County line, Hayes & Wolf's Herbert Seibert 1, NE NE NE 4-1n-13w recovered a 13-foot core in McClosky lime at 2688-2708 feet of which 10 feet was saturated. Starting at an elevation of 484 feet it topped the Bridgeport at 1400 feet. Biehl at 1780 feet, Glen Dean at 2165 feet and McClosky at 2684 feet. Plug will not be drilled until February 2.

First Devonian lime producer in the Tonti township field of Marion County caused a furor in oil circles when it made 4200 barrels of oil in 24 hours following a 1000-gallon acid treatment. It is Arthur "Tex" Harvey's J. L. Kagy 6, 460 feet from south line and 200 feet from east line, SE SE 33-3n-2e, bottomed at 3547 feet. The well has been testing since the first of the year and appeared to be only a light producer until it was deepened from 3530 to 3547 feet. The Devonian is the fourth horizon to pay off in the field. Others are the Benoist and Aux Vases sands and McClosky lime.

Possibility of Rosiclaire production in the Centralia townsite pool, Clinton County, was indicated when Androde et al's Meisenheimer 1, Lot 9, Block 1, Pullen Subdivision No. 3, set 4½-inch casing to test a show topped at 1510 feet. The well, an old Benoist sand producer, was started to the Devonian, but is the first venture in the field ever to set casing for a Rosiclaire test. Operators who have completed Devonian producers in the field reported they cored slight shows in the Rosiclaire.

Best Devonian completion to date in the townsite field is Algona Oil Company's Skipper-Koehler 1, Lot 4, Block 1, Pullen Subdivision No. 3, 100 feet northwest of the deep discovery well. It flowed 888 barrels in 24 hours from 2906 feet following a 500-gallon acid treatment. A block south of the discovery, Burnham - Johnson's Bailey - Marshal 1, Lot 19, Block 2, Pullen Subdivision No. 3, was completed as a 240-barrel producer at 2909 feet after two 500-gallon treatments. It started off at a barrel a minute, then went dead, and was completed following 48 hours of swabbing and a second acid shot. Nearing completion was Taylor Drilling Company's Heiss 3, NE SE 13-1n-1w, which was testing after acid. Operators reported some water was showing. There are 25 other operations in the field, several of which are nearing Devonian depth.

Included in the week's completions in the Lake Centralia-Salem pool of Marion County was a 5974-barrel well, second largest Devonian well in the field. It was Magnolia Petroleum Company's W. B. Young 31, SW NE 20-2n-2e, which was acidized with 5000 gallons. Total depth is 3440 feet. Still the best completion in the deep lime is McBride, Inc.'s N. L. Lee 17, Section 29-2n-2e, which flowed 6212 barrels initially after a 5000-gallon treatment. Magnolia Petroleum Company also completed S. Shanafelt 31 as an excellent producer. The well, 330 feet from east line and 1092 feet from south line, SW SE 29-2n-2e, flowed 4855 barrels in 24 hours, total depth 3440 feet. There are 103 Devonian operations in the field which last week produced 211,000 barrels daily to establish an all-time record.

Illinois basin production held by Magnolia Petroleum Company has been restored to a near peak level with the daily yield increasing to 56,200 barrels from 329 wells the past week. Prior to the development of the Devonian zone under its properties, production had declined to 32,000 barrels daily. The bulk of the company's production is handled by the Socony-Vacuum Oil Company, Inc., Midland Pipe Line Division, an affiliated unit, which has boosted its runs to 75,000 barrels daily, representing controlled and purchased oil.

In the Bartelso pool of Clinton County, the second Devonian producer was gauged at 27 barrels an hour. It is Paul Moseback et al Maddux 1-B, SW SW SW 4-1n-3w, total depth 2434 feet. Third prospective deep well in the field is Newton & Ward's Gross 1-B, SE SE SW 5-1n-3w, which set casing after coring 10 feet of Devonian saturation at 2389-99½ feet.

An Aux Vases sand well in the Fairman pool on the Marion-Clinton County line, Cascade Oil Company's Adams 4, SE NE SE NE 13-3n-1w, swabbed 1 barrel an hour natural and was to be given a light shot of nitro. Total depth is 1463 feet. All other production in the pool is from Benoist sand.

A slight eastern extension of the Avena township field in Fayette County was assured when Minerva Oil Company's Bail 1, SW SE 16-7n-2e, swabbed 7 barrels of oil in a brief test. It is shut in for pipe line connection.

One of the largest transactions of several months was announced by J. B.

Barnes who purchased the entire holdings of the Whiteway Oil Corporation of Fairfield for a consideration of $426,400 of which $100,000 is to be paid in cash and the balance in oil. Barnes said the purchase included 1235 acres in Wayne County, three producing wells, and 1264 acres in White County. The sale also provides for the immediate drilling of 6 inside locations, and protection of all offsets.

Indiana

Outpost gets good Waltersburg sand show

Evansville, Ind. — Continental Oil Company's C. H. Kleiderer 1, NW SE NW 26-3s-14w, in the southwestern part of Griffin field production in Gibson County, cored 22 feet of good saturation in the Waltersburg sand, topped at 2058 feet, but was drilling ahead to test lower horizons before setting casing. The test is just west of a dry hole drilled several months ago by Fitzpatrick and Hays and is about 1½ miles southwest of nearest Waltersburg production. Moran Drilling Company is contractor.

In the south Griffin area, just north of the Gibson County line, this operator is moving in rotary for Keck Heirs 4, 330 feet north and 400 feet west of the SE SW 27-3s-14w.

Superior Oil Company's Mumford Realty Company 2, 2310 feet south and 3630 feet west NEc 31-2s-13w, 1 mile north of Griffin, Posey County, was waiting on orders at 2716 feet, the Chester series. In the South Griffin area of Posey County, J. E. Crosbie, Inc.'s Keck 4, NW SW NE 34-3s-14w, was waiting on cement after cement squeeze job to shut off water. Casing was perforated in the Tar Springs at 2187-92 feet.

On the Wabash County, Illinois side of the Griffin field, about 2 miles southwest of Keensburg, Continental Oil Company is setting casing to the McClosky in Albert Gray 3, NE SE SE SW 20-2s-13w. The test failed to get favorable showing in the Cypress, from where most of the wells in that area are producing. It is just east of W. M. Bartlett's Camilla Stansfield 1, a Biehl-sand completion which early last year initiated the Wabash County drilling campaign.

In Monroe Township, Pike County, Indiana, just east of Spurgeon, George Miller's Robert Nixon 1, NE NW SE 14-3s-8w, was preparing to resume drilling at 4200 feet, and may be drilled to a reported depth of 6000 feet. This year-old test, deepest yet to be drilled in this section, has been a tight hole since it was spudded.

Gulf Oil Corporation's Shelby Wright (S. F. Hamilton) 1, NW NW 29-7s-6w, in the Rockport gas field, Spencer County, was deepened from 903 feet to 910½ feet and completed for the heaviest producer in the field, estimated at 21,350,000 cubic feet daily. At 903 feet the well gauged 10,800,000 cubic feet.

Charles Steele et al's Tom Heldt (Indiana Trust & Savings Bank) 1, 330 feet from north line and 100 feet from west line, NE SW 18-7s-11w, Vanderburgh County, plugged back from 1932 feet and set 5½-inch casing at 1844 feet for a test of the Waltersburg. The wildcat, southwest of Evansville, had been shut in for several months.

In Southwestern Knox County, Horton & Wiggins' Upham A-1, C N½ SW NE 3-1s-12w, was drilling below 2065 feet after passing through a dry Cypress.

West of the New Harmony field, in White County, Illinois, Sun Oil Company is rigging up rotary for Charles Ford 2, C W½ NE SE 18-5s-14w, just south of Ford 1, completed for a small producer in the McClosky several months ago.

E. H. MOORE INC.

PRODUCERS OF
CRUDE OIL

General Offices
Tulsa, Oklahoma

Kentucky

Start test in Corydon, Henderson County

Owensboro, Ky.—Sun Oil Company was rigging up rotary for Corydon Unit 3, on the S. Mason farm in the Corydon section of Henderson County. It is 935 feet northwest of Corydon Unit 1, 1080 feet northeast of George Trigg 2, and 3 miles north of Corydon. D & H Drilling Company is the contractor.

E. C. Daugherty and J. C. Ellis' J. A. Leet 6, in the Utica field of Daviess County, initialed about 70 barrels a day from the Tar Springs and Jones sand and was completed.

In the Niagara field of Henderson County, Chester Oil Company and Jack Cox's E. Jones 1 was dry through the Niagara sand at 660 feet. Hunt et al's Griffin 1 was testing the Niagara, topped at 697 feet, following a 40-quart nitroglycerine shot. Bottom was at 681 feet.

W. Hagan et al's Drake 1, Section 24-1-31, wildcat in eastern Muhlenberg County, was spudding.

In the Oakes field of northeastern Ohio County, Raymond Mill et al were moving in materials for the Richard Heirs 1.

Forest City Basin

Forest City Basin development slowed by weather

St. Joseph, Mo.—The Forest City basin, three months after its first oil strike, has yet to see its second oil well.

Pawnee Royalty Company is taking about 100 barrels of oil daily from Boyce 1, Richardson County discovery, but severe weather has hampered further exploration. About 300 barrels of water is being taken with every 100 barrels of oil at Boyce 1, and production alternates between natural flow and pumping. Whether the water is from the Hunton lime or is caused by improperly sealed casing has not been determined.

Pawnee Royalty Company's Meyer 1, ¾-mile southwest of Boyce 1 and forced by a lease agreement, is using the standard cable rig that drilled the discovery. Drilled tight, Meyer 1 is believed to have topped Hunton at 2520 feet. It was drilling ahead to the Viola lime, expected at 3200 feet, but was stopped by the weather at 2950 feet.

Also in Richardson County but 14 miles west of Pawnee Royalty Company tests, Ed Uhri and H. C. Stephens, of Humboldt, Nebraska, have taken a test down to 550 feet. M. J. Lewis, Houston contractor, is moving in rotary for a test 9 miles west and a little north of Boyce 1 for these operators. Forest City Basin Syndicate (F. L. Dodge) will make a test 3 miles west and 1 mile north of Boyce 1.

Seismograph crews are working in Richardson County for Stanolind Oil & Gas Company, Phillips Petroleum Company and Indian Territory Illuminating Oil Company.

A wildcat bailing free oil and a dry

hole are recent contributions of the Missouri sector of the basin. Weather has delayed moving in pipe for a test at T. E. Baldwin's Johnson 1-A. Schuyler County. Free oil was bailed at 1068 feet. F. C. Miller's Corrough 1, 3 miles east of St. Joseph, Buchanan County, was abandoned at 2307 feet in the Arbuckle lime, topped at 2245 feet. A slight show of dead oil was drilled at the top of the Viola lime, 1982 feet.

Two and possibly three tests are in prospect for DeKalb County, Missouri. American Oil & Gas Corporation plans to start by April 1 on its 4000-acre block; E. H. Lawhon and J. N. Willman are preparing to drill Gotschall 1, C SE SE 18-59-32w, and Bird & Boreing are attempting to arrange a block for test.

A spudder is being moved in to replace a machine that carried Brin & Nathan's Decker 1, Holt County, Missouri, to 1030 feet.

In the Iowa portion of the basin, Phillips Petroleum Company's Creston 1, Union County, has drilled to 1418 feet. It had 4 bailers of water an hour at 1377-1380 feet, the Mississippian.

Fishing operations during the past month have delayed McLaughlin Sons' McLaughlin 1, Jefferson County, Kansas. At 1916 feet, it may be plugged back to test Mississippian oil showings. As a last resort, the test will be completed as a gasser. It gauged 8,000,000 cubic feet a day in the Bartlesville sand at 1434 feet. These operators plan to drill 4 or 5 other gas wells in the area.

Western Tennessee wildcat disappoints on electric log

Celina, Tenn.—Raymond Gear's Lee 1, 1½ miles southeast of Gates, the center of interest in Lauderdale County activity, was reported in lower Ordovician at 2815 feet where an electrical log failed to reveal porosity. Hupp & Hume are contractors on the well, which is one of the first to be drilled as a result of the recent Western Tennessee lease flurry.

Arc welding short course at Tulsa

A special course of instruction in Arc Welding Design and Practice will be given February 5 to 9 under the auspices of the Tulsa Chapter, American Welding Society. Sessions will be held at the College of Petroleum Engineering Building, University of Tulsa.

E. W. P. Smith, electrical engineer and chief consulting engineer for The Lincoln Electric Company, Cleveland, Ohio, will direct the course. He will be assisted by expert welding technicians. Demonstrations will be held during the afternoons, while lectures between 7:30 and 9:30 will feature the evening sessions. Special instruction on arc welding will be given to small groups between 3:30 and 5 each afternoon.

The course is intended primarily for engineers, designers, production executives and supervisors in charge of welding operations in all industries. A $5 registration fee covers all special instruction, consultation and mimeographed lectures. Applicants may register with the Tulsa Chapter, American Welding Society, P. O. Box 910, Tulsa.

Oklahoma

Start second Washita deep test; two new gas pools.

Tulsa.—Continental Oil Company has staked location for a second deep test in Washita County, School Land 1, C NE 16-8n-16w, 10 miles southeast of Cordell and 27 miles southeast of the company's Proctor 1, C NW 28-10n-20w, a wildcat abandoned at 14,582 feet. School Tract 1 is on a 23,000-acre block extending in a northwest-southeast direction through three townships. Fain Drilling Company will move in tools from Proctor 1 for the scheduled 10,000 foot test, which may be taken to the Wilcox sand. Nearest production is shallow zones in the Gotebo, Hobart and Komalty areas of Kiowa County. The new test is situated along the southwest portion of the Anadarko Basin.

A new gas area was opened in Pawnee County by Central Commercial Oil Company's Rigsby 1, SE NE SE 17-20n-9e, east of Lauderdale area. Dutcher sand at 2510-2523 feet was perforated to show for 5,000,000 cubic feet.

W. R. Staples completed a gasser

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wildcat at Dean 2, C SW SE 31-12n-13e, a mile south of Schulter gas pool, Okmulgee County. From Salt sand at 1105 feet, it showed for 1,000,000 cubic feet daily.

Paul McIntyre et al's McMahon 1, NWc SE 36-11n-9e, north edge of Okemah pool, Okfuskee County, swabbed 25 barrels daily from Wilcox sand at 3790 feet. It is being deepened. Summit Drilling Company et al's Simmer 1, SW SE NW 18-10n-11e, and Steil 3, NW NE SW 18-10n-11e, were new locations. The company's Thompson 1, SE SW NW 18-10n-11e, flowed 23 barrels on a 1-hour test through a ¾-inch choke. Pay is Booch sand at 2297-2305 feet. In the same area, Doak and Hughes made location for Douglass 1, SW NE NE 16-10n-11e, and Winona Oil Company was completing pits at Hen 1, NE NW SE 16-10n-11e. Burke-Greis Oil Company and Zephyr Drilling Company staked location for Brown 1, NE SE SE 19-16n-10e, east of Bristow pool, Creek County. Warren and Bradshaw Drilling Company's Sewell 1, NE SE SW 35-15n-10e, southwest of Wilcox pool, Creek County, was moving in materials.

W. A. Delaney, Jr., is contracting for a 7800-foot test in Section 12-7n-2w, east of the abandoned Bale pool, Cleveland County.

Simpson - Roodhouse Drilling Company's James 1, SW SE SE 9-5n-3e, became the third producer for Byars pool, formerly called Chism pool, McClain County. In 3 hours it flowed 256 barrels through 2½-inch tubing.

Blackwell Oil & Gas Company et al's Berry 1, NW SW SE 24-18n-4e, between the North March and Broyles pools, Payne County, cemented 3650 feet of 7-inch casing in the Viola. Hole is bottomed at 3700 feet in Simpson dolomite and will be tested. An electric log showed saturation.

Magnolia Petroleum Company's Fiekes 1, C SW SW 31-18n-14w, northwest of Oakwoods, Dewey County, ran 9⅝-inch casing to 6470 feet, and will drill deeper.

Midco Oil Corporation and drilling Bruner 1, NWc SW 29-17n-11e, in the South Sapulpa area, Creek County. Thompson Brothers were putting Meadors 1-A, NEc 23-9n-9e, Hughes County, on the pump. Cromwell sand at 3229-38 feet was shot with 50 quarts. It was bailing 15 barrels of oil and 25 barrels of water per day.

Kansas

New pool indicated; three receive extensions

Wichita.—A new Lansing lime pool was indicated for Barton County as Howard Brunson et al's Wondra 1, C W½ SW NE 15-17-12w, southeast of Ainsworth pool, filled 800 feet with oil. Lansing zone was found saturated at 3130 feet, but operators were going to the Arbuckle lime before making a test.

Two pools in Russell County received extensions. Coralena Oil Company's Ehrich 1, SW SE SW 19-14-13w, ¾ mile northwest of Hall pool, established a 24-hour potential of 2662 barrels in the Kansas City lime at 2990 feet. W. C. McBride's Jellison 5, NWc SW 19-13-14w, pumped 845 barrels daily to extend Atherton pool, Russell County. Arbuckle lime was drilled to 3270 feet.

Frank Hopper's Flora 1, SWc 26-19-10w, ½ mile east of production in the East Silica pool, Rice County, filled 1000 feet with oil. Hole is bottomed at 3003 feet. Transwestern Oil Company and Bradley Brothers were rigging up Shumway 1, CNL NE NE 13-20-6w, a west offset to the North Bornholdt pool discovery well. Central Petroleum Company and Springrose Drilling Company's Swanson 1, C N½ NW NW 18-20-5w, flowed 375 barrels of new oil in 2½ hours through casing. Mississippi Chat was topped structurally high at 3304 feet and drilled to 3343 feet.

Prusa pool, Barton County, continued to expand in a southward direction. Barnsdall Oil Company's Rous 2, C S½ NE SW 28-16-11w, was testing with 3000 feet of oil in the hole. Arbuckle lime was penetrated to 3300 feet.

Six miles north of Gardner oil and gas pool, Johnson County, F. J. Kasper's Kaths 1, SEc NW 33-13-22e, was completed for 500,000 cubic feet of gas daily in Squirrel sands at 595 and 658 feet. This shallow production was extensively developed during 1939.

Deep Rock Oil Corporation et al's Turner 1, C S½ SW SW 2-24-11w, farthest north producer in Zenith pool, Stafford County, established a bottom-hole potential of 9525 barrels, although the state maximum is 3000 barrels daily. Both Misener and Viola formations were acidized; Misener at 3684-3704 feet and Viola at 3705-48 feet.

Water has evidently ruined what chances Cities Service Oil Company's Padlena 1, SEc 26-14-10w, north of Stoltenberg pool, Ellsworth County, had of making a commercial producer. Its best gauge was 25 barrels of oil and 589 barrels of water in 22 hours. Lansing lime was treated and several squeeze jobs have been ineffective. Phillips Petroleum Company's Sturn 1, SEc NW 36-17-10w, east of Stumps pool, was a location.

Run Casing

Mid-Plains Oil Company's Newkirk 1, C S½ SW SW 14-18-7w, 4 miles northeast of Geneseo pool, Rice County, topped Topeka lime at 2445 feet, Kansas City lime at 2780 feet, and ran 8-inch casing before drilling deeper.

Gulf Oil Corporation had a dry hole in Marchand pool, Barton County. Schartz 2, C W½ NW SW 18-20-11w, was abandoned at 3383 feet. A Hittle pool extension test was abandoned after pumping 12 barrels of oil and lots of water; Springrose Drilling Company et al's Waite 1, NEc SW 28-31-4e, was given up in Arbuckle lime at 3372-73½ feet.

Rex & Morris were moving in materials at Wright 1, C E½ NE SW 30-28-8e, 3 miles east of Brewer pool, Butler County. J. J. Hall was rigging up cable tools at Smith 1 "A", C W½ NW NE 13-12-16w, in the Blue Hill area, Ellis County.

C. L. Sheedy et al's Hook 1, NWc 4-22-10e, east of Pixlee, Greenwood County, was making hole below 1000 feet. Aladdin Petroleum Corporation has rig up at Bitikofer 1, C N½ NE NW 1-20-1w, east of abandoned Wenger pool, McPherson County.

North and West Ellinwood pools, Barton County, apparently have been joined. Sam Schneider and Clyde Pulse et al's Knopp 1, CNL NE SE 6-20-11w, was cleaning out and preparing to acidize Arbuckle lime at 3339-54 feet. After a 20-quart tamped shot at 3336-48 feet, hole filled 1000 feet with oil in 2½ hours.

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North Texas

Two tests authorized for Clay County area after Strawn show

Wichita Falls.—Authorization of 2 new tests for the Southwestern Clay County oil area uncovered by Shell Oil Company's Henderson 1, near C NW TE&L Section 2605, indicates that development will not be restricted if the Strawn multiple pay yields attractive production. The discovery failed to exclude water in plugging back by stages from 3824 feet to 3548 feet, where swabbing test yielded 120 barrels of oil and 509 barrels of water in 21 hours. It will be plugged back again to try and make a producer from the middle pay topped at 3505 feet, then if necessary the 4½-inch oil string, cemented at 3494 feet, will be perforated opposite the upper sand at 3419-32 feet. The latter filled tester with 2600 feet of oil in 15 minutes with 1225 pounds bottom-hole pressure.

L. T. Burns et al have entered the above area with locations for Mullens 1, SE SE NW Section 2617, and Henderson 1, SW SW SE Section 2615. If productive, each will require 3 offsets.

Archer County continues to attract deep lime prospecting with 2 new tests launched the past week. Petroleum Producers Company's D. L. Wolf 1, NWc Section 2, J. Poitevent Survey, A-1228, 8 miles west by north of Anarene, was drilling at 750 feet on a 5200-foot contract. C. B. Christie-Phillips Petroleum Company et al's H. H. Taylor 1, near SE SE SW Section 15, H. Cox Survey, A-67, is situated on a strike between the Hull-Silk and Asylum areas. Wayne King and associates have obtained production rights below 3000 feet on a block in southeastern Archer County, centering upon TE&L Section 1867, for the drilling of a 5500-foot test. Negotiations are pending for the sale of an interest in the block.

W. B. Omohundro et al have assembled a 900-acre block in southeastern Wichita County and immediately north of Lake Wichita for a deep test to be drilled in SE Block 28, League 1, Denton County School Lands, A-58. The same group began operations last week on L. N. Lockridge 1, near southeast corner of L. Netherly Survey, A-240, situated a mile east of the most southeasterly producer given the K-M-A field.

W. P. Staton and Howard Bunch's Robertson County School Lands 1, eastern Baylor County wildcat, logged nominal oil saturation in Canyon series at 2997-3025 feet followed by water at 3037-50 feet. It will be deepened to fulfill 3500-foot depth contract. Hall-Jordan Oil Company's Blackman 1, wildcat in northeast part of the county, was drilling dry sand at 2450 feet.

Gas flow rated at 1,500,000 feet daily was developed by Foster Petroleum Corporation's Allee 1, near NEc of west 140 acres of S½ H&TC Section 314, Block A, Foard County, after perforating casing at 2305-09 feet. The hole was drilled to Ellenberger at 3340-3417 feet before plugging back to 2350 feet to test gas shows passed up in fulfilling depth contract.

In eastern Montague County, The Texas Company's Martin 1, C. A. Barnes Survey, ⅝ mile east by north of the most easterly producer in the Bonita pool, logged top of granite wash at 3581 feet, and was drilling at 3590 feet. United Producers Company and Continental Oil Company's Custer 1-A, several locations east of the Bonita pool discovery, entered solid granite at 3805-09 feet after passing up adequate oil saturation in the broken lime and granite wash zone to assure an oil producer. Sinclair Prairie Oil Company's Howard 1, projected 5000-foot test situated ¾ mile west of the town of Bonita, was drilling shale at 3920 feet. No shows have been recorded.

Inclement weather has delayed testing of Walter Gant and Continental Oil Company's Brown 1, western Montague County wildcat, previously listed as having logged nominal saturation in Ellenberger at 7288-7333½ feet. Liner will be run to shut off a portion of the open hole below the 7-inch casing seat at 6843 feet.

Cancel Midway shutdown

The Texas Railroad Commission has entered an order effective January 25 exempting wells in the Midway field, San Patricio County, from shutdowns for the remainder of January. The exemption was requested by Phillips Petroleum Company.

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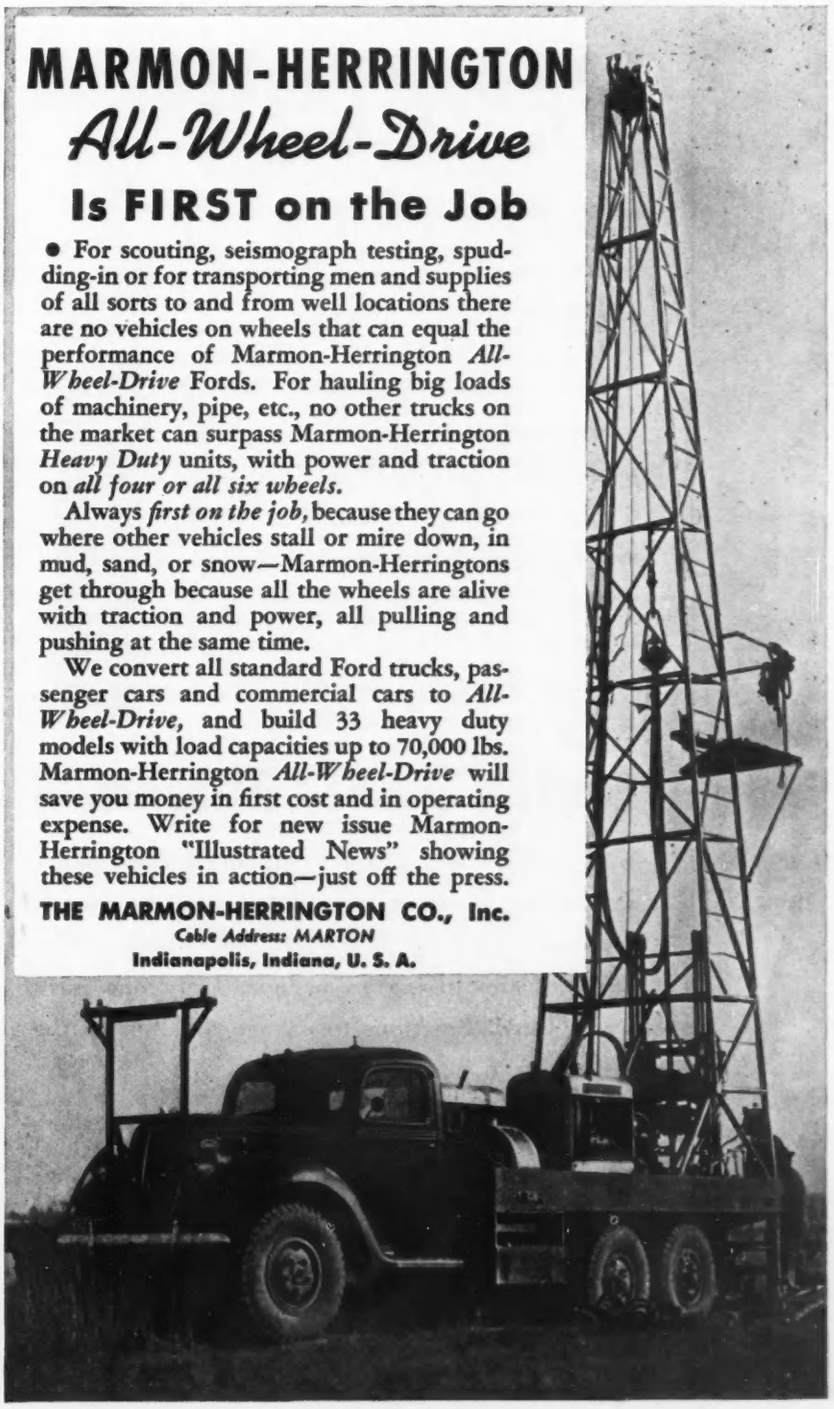

West Texas

Yoakum and Pecos counties get tests in wildcat revival work

Midland.—A revival of wildcatting in West Texas has been evident for some weeks, and the majority of the projects are on blocks that require deep tests to reach their objectives. Extensions are to be sought to the north and east of the upper basin region by 2 authorizations the past week. Yoakum County is in line for an exploratory test and a semi-wildcat, while northwestern Pecos County is to be given its first deep test.

The Delaware or the Ordovician will be the objective of Plymouth Oil Company in contracting to drill the Pecos County test to 5000 feet as part consideration in acquiring lease on H&GN Section 104, Block 8, along with other nearby tracts. The company has been accumulating acreage in the area for more than a year for the purpose of exploring the lower zone.

Pecos County is the most popular area for Ordovician prospecting since the discovery of the Apco pool last year and more recently the strike by Olson Oil Company and McCandless' Crockett 1, which opened a new high-gravity oil pool January 19 after using acid in Ellenberger saturation at 4502-4518 feet. This discovery was shutin for storage after a second gauge of 531 barrels of 43.8-gravity oil in 5 hours with gas volume rated at 2 million feet daily. In the Apco pool, Skelly Oil Company's Masterson 1-J was drilling at 3550 feet, and Humble Oil & Refining Company's Young 1, 8½ miles to the northwest, was drilling at 4180 feet.

Large-scale lease buying that has been underway in northwestern Hockley County for some months will facilitate the financing of tests to the Permian. Denver Producing & Refining Company and Helmerich & Payne, have made location for Deloache-White Face Farm 1, near southeast corner of Labor 22, League 77, Reeves County School Lands. Stanolind Oil & Gas Company, large lease purchaser in the district will support the test.

Lynn County is given a 5200-foot test by H. F. Wilcox Oil & Gas Company's Powell 1, NW SW SW EL Section 134, Block 12, 1½ miles northeast of Baldridge et al's recently completed 4450-foot junked hole. Comparatively few Permian tests have been drilled in the county.

In Yoakum County, Tom Sloan et al are negotiating for a test to be drilled on a northeast strike from the Bennett sector and west of the Waples-Platter pool. Location may be assigned to Section 554. The same group contracted to drill P. M. Williams 1, C SW NW Section 147, Block D, J. H. Gibson Survey, amidst acreage that has been in demand for some months at $10 to $25 per acre. The Texas Company is reported to be contributing $17,000 in return for an early test and additional acreage while other lease owners are posting bottom-hole money.

Revival of development immediately west of the north end of the Means field, Andrews County, is pending as result of Standard Oil Company of Texas having farmed out lease on N½ PSL Section 20, Block A-34, to Harry Bass et al for an immediate test.

Oil Well Drilling Company et al's Sikes-Humble 1, C SE SE PSL Section 10, Block A-25, Gaines County wildcat, logged top of brown lime at 4170 feet, with an elevation of 3364 feet, and was drilling at 4580 feet. Stanolind Oil & Gas Company's Riley 1, 3½ miles northwest of production in the Cedar Lake pool, was cleaning out shot cavings 30 feet off bottom. The fluid level does not offer much promise of making a commercial pumper, although broken saturation was logged at 4762-4864 feet. However, it will be deepened with tools.

Continental Oil Company et al's Todd 1, Crockett County Ordovician prospect, continued to yield water with no encouragement for oil or gas production after 1235-quart nitro shot and treatment with 7000 gallons of acid at a plugged-back depth of 6336 feet. The hole has been bridged back to 6332 feet for an additional test. The unit group's Todd 2-29, projected Ordovician test for the same structure, skidded rig because of crooked hole at 470 feet. Shallow development is being carried on within the 4480-acre unit to forestall

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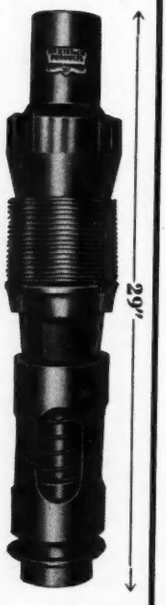

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lease expirations, and Stanolind Oil & Gas Company et al's Todd 4-S-30 recently opened a new pool in flowing 69 barrels of 21-gravity oil initial from sand at 1219-25 feet through ½-inch choke. Gas volume was rated at 876,300 feet daily. Continental Oil Company's Todd 1-S-32 passed up show of oil at 1319-26 feet, and was drilling at 1365 feet. Stanolind Oil & Gas Company et al's Todd 5-S-67 logged top of lime at 1330 feet, with an elevation of 2487 feet, and shut down at 1340 feet to land pipe. Near west edge of Crockett County, Moore Exploration Company's Halff 1, I&GN Section 65, Block 1, wildcat core test, is reported to be running tubing and rods for a pumping test after encountering a shallow oil show while drilling with a core machine.

Half-mile southeast, extension was given the Sharon pool, Scurry County, when Petroleum Producers Company's Sterling-Magnolia 1, NE NW NW H&TC Section 123, Block 97, pumped 72 barrels initial after 720-quart nitro shot in broken sandy-lime at 2298-2433 feet.

Stonewall County wildcat has good show of oil in Strawn

Abilene.—Shell Oil Company's Smith 1, Stonewall County wildcat, encountered good show of green oil in sandy-lime at 5180-85 feet in Strawn section, topped at 5151 feet with an elevation of 1767 feet. Seven-inch pipe is being lowered to make a production test. This prospect is located 7 miles south by east of Aspermont on a core-drilled structure, and is the first in the general area to give promise of production in the Strawn. Small amount of free oil was passed up in sand at 4395-4401 feet, identified as Canyon, which was topped at 3625 feet. The Palo Pinto lime, which was entered near the 4700-foot level, proved dry.

W. I. Southern's Carlisle 2, 1800 feet northwest of the discovery well of the Carlisle pool, first discovery for Stonewall County, is cleaning out cavings after landing 5½-inch pipe at 6108 feet to test show of oil at 6185-6200 feet in lime, tentatively identified as the Bend series.

A new oil strike for the south line of Haskell County is indicated by K. B. Nowels et al's Pardue 1, SWc Section 1, S. F. I. W. Survey, which is awaiting acid treatment of Palo Pinto lime at 3398-3404 feet with 7-inch at 3395 feet. The hole was plugged back to 3420 feet after encountering water at 3434-38 feet. Bailing test given the oil zone before deepening to water yielded sufficient free oil to make a producer with the aid of acid.

Tal-Vez Oil Company's M. D. Richards 1, near SEc Block 10, Guadalupe County School Lands Survey No. 120, Taylor County semi-wildcat, developed spray of oil with 500,000 feet of gas from lime at 2367-82 feet. Pipe has been cemented at 2330 feet to test. It is located ¾ mile east of gas production and 1¾ miles southeast of nearest oil production in the same horizon.

Stribling Extension

Southwest extension to the Stribling pool, northwestern Stephens County, was in prospect late last week when Grace & Wood's Beatty 1, NEc W. M. Bales Survey, A-1110, cored oil saturation in regular pay zone at 3610-36 feet. Seven-inch pipe was cemented at 3610 feet to test.

In Palo Pinto County, Hickok and Harry Reynolds' Johnson 6-B encountered a deeper pay for the area in testing 4,800,000 feet of gas with small show of oil in lime at 4270-4330 feet. It is 1¼ miles northwest of nearest gas production.

A block of 2500 acres has been assembled by Dobbs Oil Corporation in Eastland County for the drilling of Poe 1, C SE H&TC Section 37, Block 3, 8½ miles southeast of Cisco. The test is located 2½ miles northwest of the McAlister 3000-foot pool, which was developed in 1927. Dobbs Oil Corporation has also made location for Thomasson 1, northeast corner of S. H. Key Survey, situated west of its discovery pumper in the South Carbon pool.

Seek increase in gas/oil ratio for Hardin field

The Texas Railroad Commission has scheduled a hearing for February 2, at Austin, on the application of Woodley Petroleum Company for an increase in the gas/oil ratio for wells in the Hardin field, Liberty County. The company asked that the allowance be increased from 2000/1 to 5000/1, and requested a 10-acre tolerance in the rules to allow drilling of only one well to 20 acres.

The application of Moss Holmes to revise the method of allocation in the

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Bowers field, Montague County, has been set for February 5 by the commission.

The hearing on the application of Staley-Wynn Oil Corporation for an increase in the allowable for its W. T. Waggoner "F," "G" and "R" leases in Wilbarger County has been scheduled for February 2.

The commission has postponed from January 26, to February 26, the application of St. Mary's Oil & Gas Company for a permit to repressure its wells in the Colony pool, Callahan County.

At a hearing set for February 5, the commission will hear the application of M. J. Ebberts for a higher allowable on his McNamara 1, in the Sour Lake field, Hardin County.

Southwest Texas

Greta sand opened at East White Point

Corpus Christi. — Heterostegina or Greta sand production was opened on the west side of the East White Point field of San Patricio County. Thus a new oil pool was indicated in Refugio County.

Houston Oil Company made a potential test in H. B. Baldwin 7, Lot 6, Section 46, and it flowed 130 barrels of 26.8-gravity crude in 24 hours through ⅛-inch choke under 1050 pounds tubing and 1550 pounds casing pressures. Perforations had been made at 4930-36 feet. The well had been drilled 3 feet into the regular Frio sand at 5693-96 feet, but recovered oil and salt water on test. Heterostegina sand was logged at 4932-38 feet and at 4939-52 feet.

Norsworthy Production Company's Ben J. Fox 1, 4 miles south of the McFaddin field and in the James Fagan survey of Refugio County, was to attempt completion in sand at 5883-5907 feet. Side wall samples indicated saturation. Hole is bottomed at 6715 feet. The wildcat was drilled by Trinity Drillers, Inc., of San Antonio.

John G. Mayo et al's Ragsdale 1, Valentin Garcia Survey, topped a sand section at 4515 feet, cored 3 feet of hard sand and 2 feet of soft sand with an oil odor. Another core recovered 3 feet of hard sand with no odor, and then 5 feet of soft salt water sand. It is being drilled deeper. The wildcat is three miles southeast of the East Telferner 5100-foot Frio sand pool. It is on a farmout from the Humble Oil & Refining Company which worked the district with geophysics.

Complete Discovery

W. Stewart Boyle's G. C. Myer, Frio sand discovery in the Victoria field of Victoria County, finally has been completed. It pumped at the rate of 22 barrels of 27-gravity oil per day at 4776-79 feet. Several squeeze jobs and reworking may have accounted for the low production.

Coronado Corporation's K. F. Welder 1, 3 miles south of Seadrift, Calhoun County, was reportedly continuing to test. It has been carried as a closed well.

A fishing job in Hiawatha Oil & Gas Company's H. B. Smith 8-B, deep test in the Saxet field of Nueces County, is expected to be completed within a few days. It stuck drill pipe at 10,892 feet, but more than 5000 feet had been cut and pulled late in the week.

Ben Bolt field of Jim Wells County was defined on the northeast by Magnolia Petroleum Company's Elizondo 2, which showed salt water in the 5200- and 5400-foot sands. It was stopped at 5443 feet.

Third Zone

A third producing zone for the Magnolia City field of Jim Wells County was uncovered by Myers & Simon's Reynolds and Richardson 1. It cored a gas and distillate sand at 5607-25 feet, then went to the second regular pay for the field at 5716-21 feet. It was being completed in the upper level through perforations at 5615-25 feet, and was showing gas and distillate as the week closed.

Flowing at the rate of one barrel of 56.4-gravity distillate per hour through 12/64-inch choke, Pure Oil Company's State of Texas 1 (169) extended the Bird Island submerged field of Kleberg County 3500 feet to the northeast. The well had been drilled to 7572 feet, but was plugged back to 7425 feet. It is believed that the well is in a new sand immediately below the regular pay.

Abandoned at 7977 feet, Skelly Oil Company's C. W. Thatcher 1, Block

Statement of Condition of the

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Stock in Federal Reserve Bank		66,000.00
Loans and Discounts		3,566,708.43
Interest Earned but not Collected		70,035.27
Building Account		952,644.80
Other Real Estate Owned		1.00
TOTAL		$40,781,964.04

LIABILITIES

Capital Stock		$ 1,200,000.00
Surplus		1,000,000.00
Undivided Profits—Net		368,937.07
Reserved for Taxes, Interest, etc.		152,921.42
Interest and Discount Collected but not Earned		15,868.67
Reserved for Undeclared Dividends		96,000.00
Deposits: Commercial	$21,156,441.64	
Correspondent Banks	5,992,417.37	
Time	8,121,466.39	
Public Funds	1,954,015.60	
Other Deposits, Certified & Cashier's Checks, etc.	723,895.88	37,948,236.88
TOTAL		$40,781,964.04

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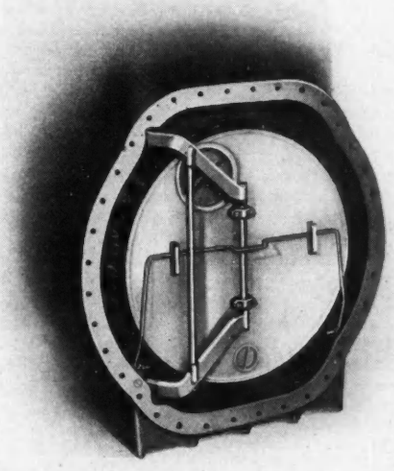
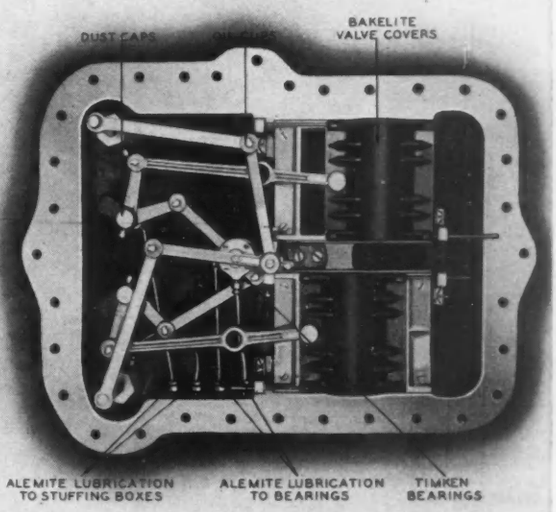
After all, the accuracy and the economy of a meter over a period of years hinge not upon just one or two outstanding features . . . but upon every detail of design, materials, construction. METRIC IRONCASE METERS give you many outstanding features plus painstaking engineering to the last detail! . . . such as the body construction of fine gray iron cast in one piece to prevent internal leaks, and specially processed inside to resist corrosion.

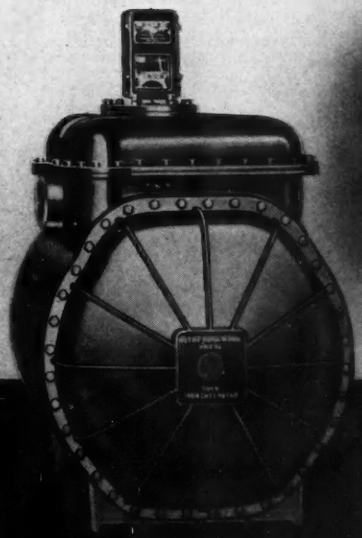


The back disc of the Metric Ironcase Meter diaphragm is fastened rigidly to middle partition. In the 500-B Ironcase Meter here illustrated, the step for the lower end of long flag rod is equipped with Timken bearings, that are Alemite-lubricated. Another distinctive feature is the full bellows, to insure accuracy throughout the entire Ironcase line.

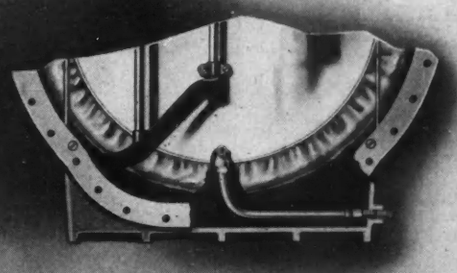
This Slide Valve construction . . . characteristic of 500-B and 250-B Ironcase Meters . . . shows the reduced angular movement and the features of design which lessen friction and prolong wear. Special materials and metal alloys are used for valves and valve seats. Dust caps also protect the Alemite-lubricated bearings. Friction loss is cut to a minimum.



Write for information on Base Pressure Index or Base Volume Index which give a corrected reading for pressure or for pressure and temperature combined.



TYPE 500-B
With Base Pressure Index



Adequate provision for draining condensate from diaphragm and case interiors, contributes to efficient diaphragm action. The illustration shows drain connection . . . leading from the bottom of diaphragm to outside of case . . . utilized in Ironcase Meters 80-B and larger. Ironcase diaphragm leathers . . . in form, quality, special tanning and oil treatment . . . also are a highly important factor in accurate gas measurement.

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3, has further defined the deep Francitas field of Jackson County. The Texas Company's Weed 1, deep well for the field, was reportedly somewhere below 9700 feet.

Contract for 14 wells in Nueces County

San Antonio. — Contract has been awarded to John Camp Drilling Company of San Antonio for drilling of a minimum of 14 and a maximum of 20 wells to 6800 feet on a 6020-acre block acquired several months ago by a syndicate headed by Robert I. Wilson, Clyde Alexander and John J. Sheerin. The acreage is between the South Agua Dulce and Stratton Fields in Nueces County.

The group took 4000 acres from Texon Royalty Company then added the remainder under individual leases. They then formed Gulf Plains Corporation which includes in addition to these three men Lehman Corporation, Chicago Corporation and Dresser Manufacturing Company. Under the terms of the contract, the company is to continue development of the block, the first well being commenced on or before February 1.

Two wells are now in the preliminary stages of drilling. Also, the corporation is obligated to commence on or before February 1 with extraction and separation unit with a capacity of 60,000,000 cubic feet of gas per day.

Welding Pipe —from a Lithograph by E. M. Schlwetz

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Frio sand attractive in Duval County

Laredo. — Frio sand development through the Mirando trend is commanding increased interest as shallow wells show for excellent producers to open new pools and extend present ones. Three Duval County areas are receiving development in this formation.

Hiawatha Oil & Gas Company's Leroy Denman 6, at the south end of the Longhorn pool, encountered a zone at 3842-60 feet, but was carried to 5992 feet. It was plugged back, perforated at 3845-55 feet, and recovered 270 feet of 44.6-gravity oil, 1000 feet of salt water and 10 pounds pressure through ¼- and ⅜-inch chokes in 10 minutes. The perforations were squeezed and new perforations are scheduled at about 3842-46 feet. It was tied up with a fishing job as the week closed.

A third gas well was completed in the shallow area a mile northwest of the Seven Sisters field. This sector, likely to be determined as a separate field, is on the northwest and upthrown side of a graben running along the northwest side of the Seven Sisters area. The newest well is Reynolds & Richardson's Drummond 2-B, Section 308. It cored the sand at 1232-62 feet and was completed for 3,500,000 cubic feet per day through ¾-inch choke.

Cox and Hamon and Gorman Yoakam's development of the Tarancahuas field, east of the Hoffman area, is netting excellent wells. Charles Hoffman 1, 660 feet southeast of the discovery and second producer in the field, jetted 332 barrels per day through ⅜-inch choke on potential test. Sand was logged at 2024-33 feet.

These Frio sand fields are proving of considerable importance as they may revive drilling of many old areas in search of new reserves. The first sand given attention in the past was the Cole, at the top of the Jackson, indicating that several hundred feet of possible producing beds were passed up.

On the downthrown side of the North Sweden fault and between North Sweden and the original Sweden field, Hiawatha Oil & Gas Company's A-1 Herberger cored the Hiawatha sand at 5852-73 feet and was completing. It may connect the two pools.

O. W. Killam is attempting to open a new oil producing area in the extreme southeastern portion of Webb County where he previously completed 2 gas wells. A. M. Bruni 64, 2 miles south of the O'Hern area and just south of the gas wells, is in the Cole sand at 1796-1811 feet. The test is flowing oil and gas through perforations at 1802-06 feet.

Two wildcats showing for small producers

San Antonio.—Two separated wildcats promised Cretaceous pools in the Balcones fault zone. While neither showed for large wells, they will bring a slight increase in the lagging development program in this sector of South Texas.

Red Bank Oil Company and Casray Oil Company injected acid into Pratt 1 to clear mud from the face of the formation. The well, in the Garcia Sur-

vey 1 mile west of Anchorage, is attempting to open a Taylor field for Atascosa County. The well, drilled under contract by R. V. Muckelroy, Lockhart, had a hard sand cap at 2343-47 feet and broken sandy shale and sand at 2347-86 feet. It is expected to make a small pumping well of 47-gravity crude.

In Guadalupe County, A. J. Holifield was opening an Austin chalk area 2 miles southeast of Lockhart. The well is Day 1, James Hinds Survey, on the upthrow side of a major fault running northeast and southwest. The well topped the Austin chalk at 2381 feet, the Edwards limestone at 2812 feet, and is bottomed at 2830 feet. The hole was plugged back to 2685 feet, base of the Buda limestone. When first tested, it showed a little oil. Acid treatment is scheduled. The well is being drilled by Pegg Brothers, San Antonio.

Colorado County wildcat disappointing on first test

San Antonio.—W. R. Davis & Company's McLane 1-A, Sparta-Wilcox operation on the Garwood structure in Colorado County, failed on its first attempt to complete from the lower formation. It was being perforated at 9960-9980 feet for a second test. The well topped the Wilcox formation around 9700 feet and was drilled to 10,536 feet, where liner was cemented. First perforations were made in a series at 10,424-10,438 feet, 10,394-410 feet, and 10,330-10,362 feet. After swabbing down to below 5000 feet, the pressure built up to 200 pounds but the well would not flow. The formation was believed too tight.

There were 7 other active Sparta-Wilcox operations in wildcat territory of South Texas. Two were in Webb County, 1 in Live Oak County, 3 in Bee County, and 1 in DeWitt County.

Aransas Pass operators say area requires wide spacing

Twenty-acre proration units with 10-acre spacing for wells drilled below 7200 feet in the Aransas Pass field, San Patricio and Aransas counties, was requested by operators at a hearing before the Texas Railroad Commission last week. Wells could be spaced 330 feet from lease lines and 660 feet apart, according to the plan submitted.

Mac L. Coker, geologist for the operators, testified that one well has been completed at 7323 feet which has a potential of 150 barrels through a 1-inch choke, and that the saturated section is only 7 feet thick. He expressed the opinion that one well would drain 20 acres of the field efficiently, a statement which was endorsed by the other producers.

Under rules now in effect operators may drill one well to 10 acres. Because the townsite drilling is governed by the city ordinance providing for one well to each city block, no effort was made to include this area in the rules proposed.

Operators testified that the wider spacing was essential if the area is to be drilled. They said that they had had great difficulty in getting royalty owners to pool.

Texas Gulf Coast

Wharton County has new gas-distillate field

Houston.—A new gas and distillate producing area was opened on the Texas Gulf Coast last week when J. F. Hutchin's A. P. Borden 2, E. M. Cox Survey, Wharton County, recovered dry gas and a small amount of distillate in Frio sands at 4771 feet. The wildcat was drilled to 5500 feet, had 5½-inch casing set at 4840 feet, and was perforated with 48 shots from 4758 to 4771 feet. It came in flowing dry gas and distillate through ¼-inch choke with tubing pressure of 1900 pounds. Casing was sealed. After the production test, operators closed the well because of weather.

In the Willis area, Montgomery County, Sturm & Womack's Foster 2 was waiting on orders at 7250 feet. Cores at 6974-84 feet showed salt water. The wildcat logged broken sand and shale with odors of oil and gas in the Wilcox from 5827 to 6816 feet. Operators may set casing and test these thin shows. In the northwest Conroe area, Montgomery County, Housh & Thompson's Calfee 1, J. McDillon Survey, was coring for the 4736-foot Cockfield producing horizon. A drill-stem test at 4515-78 feet recovered 1000 feet of salt water and a 130-pound pressure.

Southwest of the discovery well at Rosenberg, Fred Browning was preparing for another production test on Socha 1. The well was perforated with 10 shots at 8151-57 feet and showed oil and salt water. A week ago it made dry gas and water through ⅛-inch choke at 8181-85 feet. Over 3 miles northeast of the discovery, Magnolia Petroleum Company's Huntington 1, H. Scott Survey, was making 22 barrels of distillate daily through ¼-inch choke with tubing and casing pressure of 200 pounds. The well was perforated with 20 shots from 8179-84 feet. It was previously tested at 8246-50 feet where it made 17 barrels of distillate daily through ⅜-inch choke.

About 5 miles north of Magnolia Petroleum Company's Huntington 1 and northwest of Rosenberg, J. Foster Survey, Fort Bend County, R. N. Ranger's Sugarland Industries 1 was abandoned at 8010 feet after running an electric log. The wildcat cored a sand with a gas odor at 7700-31 feet and made a 20-minute drill-stem test at 7715-31 feet through ¼-inch top and ⅜-inch bottom hole choke. The wildcat showed no pressure, a slight blow, 120 feet of mud and 1365 feet of salt water. It had salt water sands around 5929-59 feet and at 7463-78 feet.

On the east flank of Old Ocean field, Brazoria County, Stanolind Oil & Gas Company is completing its first oil producer. Giles 1 was drilled to 10,600 feet

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and 7-inch casing was set at 10,585 feet. Casing was perforated at 10,007-117 feet and tubing is being run for a production test. Sun Oil Company is completing another well on the east side of Old Ocean. Borsodie 3 was perforated at 10,105-37 feet and flowed 281 barrels of 37.6-gravity oil in 12 hours through ¼-inch choke with tubing pressure of 1200 pounds. Casing was sealed.

To Perforate

Glenn H. McCarthy's Andrau 1, H. T. & B. Survey, ¼ mile southwest of the discovery at Chocolate Bayou, Brazoria County, was shut down at 10,591 feet after running 7⅝-inch casing. This operator was preparing to make another test on Salmon et al 1, Geo. Robinson Survey, ¼ mile northwest of the discovery at Anchor, after drilling to 9410 feet. Casing will be perforated. Casing was previously perforated with several shots at 9882-84 feet and 9883-90 feet, and cement was squeezed through the perforations to shut off any salt water which might be coming in from behind the casing. A test at 9824 feet showed distillate and gas.

S. G. Harrison's Carlson 1 was located in the Morris & Cummings Survey, Wharton County, 1 mile south of the Hilje area discovery, The Texas Company's Peters 1. The Carlson 1 will be drilled to the shallow producing horizon above 5000 feet. In the El Campo area, H. C. Cockburn has located Reitz 1, E. T. R. R. Survey 59. On the flank of Boling dome, Titanic Oil Company has abandoned Kellner 1, S. F. Austin Survey, at 4328 feet in shale. No oil shows were reported.

Stanolind Oil & Gas Company's Seaberg 4, ¼ mile north of production at Martha, Liberty County, was shut down at 8200 feet and will probably be abandoned. No shows were reported after running an electric log. Fidelity Oil & Refining Company will drill a 9000-foot wildcat southeast of Hampshire, Jefferson County. Location was made for Craigen 1, T. & N. O. Survey 146.

Geo. Anderson's Lawrence 1, W. D. Smith Survey, 3 miles north of Cedar Point, Chambers County, was shut down at 7215 feet in salt water sand. The wildcat had a slight show of oil at 7131-35 feet, and a test may be made of this sand. In the Ogburn area, Harris County, Christian - Carpenter Drilling Company's Grisbee 1 was fishing at 6646 feet. Sand and shale with no shows were cored from 6608 to 6646 feet.

Texas commission grants 201 permits

Permits for drilling 201 new wells were approved last week by the Texas Railroad Commission, 3 less than were allowed the week before.

Operators in the East Texas field were permitted to drill 11 wells, including 9 in Gregg, 1 in Smith and 1 in Upshur County. Three locations were reported from the remaining part of the East Central Texas area.

Southwest Texas led the state with 45 permits, and West Texas held second place with 43 approved locations, including 20 in Yoakum County. The commission granted permits to drill 26 wells in the Gulf Coast District, while operators in West Central Texas were permitted to drill 22 wells, including 11 in Jones County. There were 38 locations approved in North Texas, while Panhandle producers listed 13 permits.

Louisiana Gulf Coast

La Pice well flows from new sand; test new Venice level

Lake Charles.—Shell Oil Company's L & I 1, at LaPice, St. James Parish, opened a new producing sand last week when it came in flowing 52 barrels of 48.7-gravity oil and 4,500,000 cubic feet of gas daily from 61 perforations at 11,340 to 11,355 feet. The oil was flowing through a 12/64-inch choke with a tubing pressure of 4700 pounds and a casing pressure of 2700 pounds.

On the south flank of Venice, Plaquemines Parish, Tidewater Associated Oil Company's Manhatten Fruit Company 11 was waiting on cement after making a production test in a new sand at 7770-90 feet. Casing was perforated with 95 holes and a drill-stem test in 1 hour and 20 minutes through ¼-inch chokes, flowed 27 barrels of oil per hour with a pressure of 685 pounds. When the drill stem was recovered it showed one stand of oil, one of cut mud and one stand of salt water and sand.

In the Delta Farms area, Lafourche Parish, Tidewater Associated Oil Company was preparing to make another test on Delta Farms 1 after perforating casing at 8829-97 feet and squeezing with cement. Casing will be perforated at 8918-26 feet for a production test. A test at 11,270-80 feet showed salt water.

On the Erath prospect, Vermilion Parish, The Texas Company's Vermilion Parish School Board 1 was coring in a sidetracked hole at 10,415 feet and should be near the sand which was found in the first hole. The wildcat was drilled to 10,595 feet in shale, a fishing job was encountered, and then plugged back and sidetracked at 10,250 feet. It is credited with logging around 60 feet of gas and distillate sand around 10,435 feet.

Plymouth Oil Company was coring in shale below 8800 feet in McHugh Heirs 1, Bayou Pegion area, Iberia Parish. No additional shows of oil have been reported since several above 8100 feet. Three drill stem tests at different horizons showed pipe line oil.

On the flank of Fausse Point, Iberia Parish, Sun Oil Company has made location for Planters 1, 500 west and 150 feet south of NEc SE 27-11s-8e, projected below 10,000 feet.

Another well drilled to the Wilcox by Republic Production Company at Bancroft, Beauregard Parish, looked disappointing when no oil shows were cored. The hole was bottomed at 10,019 feet and was plugged back to the regular sand at 7355 feet where 5½-inch casing was set.

In the Ten Mile area, Allen Parish, Phillips Petroleum Company's Industrial

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Lumber Company 1 was abandoned at 10,305 feet in shale. Dry Wilcox sands were cored at 10,285 to 10,305 feet.

The second well at Barataria, Jefferson Parish, was down to the sand. Gulf Refining Company's Rathborne 1, south of the discovery, topped the oil sand at 8200 feet and is bottomed at 8210 feet. Seven-inch casing has been set on top of the sand. The discovery had the oil sand at 8204 feet.

In the Grand Lake area, Plaquemines Parish, Gulf Oil Corporation recovered oil and salt water in a new sand in Grand Prairie Levee District 6-A, last week. It has plugged back and is waiting on cement to set at 9995 feet. Casing was perforated at 10,008 to 10,017 feet, and a 30-minute drill-stem test showed 9 barrels of oil and salt water, 180 feet of salt water and 360 feet of mud-cut oil.

At West Lake Verrett, St. Martin Parish, Shell Oil Company's Jeanerette Lumber Company 4 was coring in sandy shale at 9800 feet at the close of the week after coring additional sands showing oil. The sands were logged from 9685 to 9689 feet and from 9691 to 9708 feet. The lower section showed salt water. The well has logged several new sands and probably after it has been drilled deeper it will be plugged back for test.

Louisiana permits

Twenty-eight drilling permits were authorized last week by the Louisiana Conservation Commission of which 7 were in North Louisiana divided among the following parishes: Bossier, 1; Caddo, 4; and Union, 2. The 21 in South Louisiana were divided among the following parishes: Avoyelles, 1; Beauregard, 1; Cameron, 4; Iberia, 1; Jefferson, 3; La Fourche, 5; Plaquemines, 2; Rapides, 2; St. Martin, 1; and Terrebonne, 1.

North Louisiana

Pine Island deep test plugs back for gas in Travis Peak

Shreveport.—The Louisiana Conservation Commission announced last week that effective February 1 a new method of allocating production for lower Marine oil wells, producing from the "D" and "E" (Bodcaw) sands at Cotton Valley will be inaugurated. After that date allocations will be made on a gas/oil ratio of 4000 to 1 with a top allowable of 300 barrels daily for each well. Ever since the first oil well in the Lower Marine in that field was completed each well has been given a flat allowable—there is an 80-acre space rule—first at 300 barrels daily and in recent months 275 barrels daily per well. Travis Peak (Holloway) sand wells will not be affected by the new method. The conservation commission also announced that the producing limit on Lower Marine gas-distillate wells, classed as gas wells for production purposes, will be increased, almost 100 percent, due to an increased market outlet for the gas.

Stanolind Oil & Gas Company prepared to run tubing in Dillon 131, C SW NE 14-21n-15w, Caddo Parish, Pine

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Island district, after the test showed estimated 20 million cubic feet of gas daily on a drill-stem test following perforation of casing in the Travis Peak at 3930-38 feet. This test was drilled to 11,418 feet into igneous material below base of Permian salt before being plugged back. A series of tests of the Lower Marine series showed no producing possibilities in that zone.

Bobby Manziel, East Texas operator, has secured a lease on the Shreveport municipal golf course comprising 80 acres adjoining production in the Shreveport field and will drill 2 immediate tests. Union Producing Company has farmed out to Triangle Drilling Company of Shreveport 1000 acres of leases in Sections 13, 14, 23 and 24-17n-12w, and Sections 18 and 19-17n-11w, in the Sligo field, Bossier Parish. Only the rights to 3200 feet are involved. This includes a horizon at around 3000 feet at contact of Upper and Lower Cretaceous found productive of oil.

Union Producing Company's Tensas Delta A-1, NE SW 8-22n-4e, Morehouse Parish wildcat, that drilled to 10,475 feet and then plugged back to 2366 feet, was acidized in the shallow Monroe gas horizon at 2163-2225 feet after perforating at that level. Gulf Refining Company cored black shale and streaks of sand at 8113 feet in its deep test in the shallow Elm Grove field, Bossier Parish, Hodges 20, NW NE 24-16n-12w.

New tanks and separators were being erected at Lisbon Exploration Company's Roberta Vaughan 1, NW NE 36-21n-5w, recently completed as a small gas-distillate well in the Lower Marine horizon at Lisbon, Claiborne Parish. Total depth is 8901 feet.

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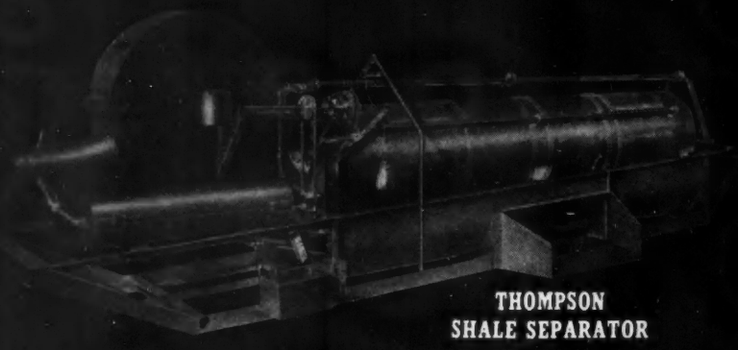

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Arkansas

Dorcheat extension try shows salt water on test

El Dorado. — Gulf Refining Company's George Lewis 1, SW NE 12-18-23, Columbia County, 3½ miles northwest of production in the Dorcheat (Experiment) field, showed salt water when formation tester was run Thursday to 9065 feet in Smackover lime, producing formation at Dorcheat. The test was made from 9045-65 feet where cores showed some saturation but insufficient permeability.

Shell Oil Company was completing the fifth oil well for the Dorcheat field at W. P. Keith 1, C SE SE 9-18-22, which flowed 70 barrels of 53-5-gravity oil in 12 hours through ⅛-inch choke; total depth is 8877 feet and porosity was topped at 8826 feet.

Two wells were completed in the Magnolia field to bring to 87 the number of producers there. These were Arkansas' only completions for the week. Snow and intense cold hampered drilling operations due to frozen pipes on drilling rigs.

Arkansas permits

Three drilling permits were authorized last week by the Arkansas Oil and Gas Commission, as follows: Columbia County—Placid Oil Company, J. W. Booth 2, C NW SW 20-17-19; Nevada County — Berry Asphalt Company, Grove Land & Timber Company 9, NEc NE SW 9-14-20. Union County—Bob Branch, J. M. Davis 1, SWc SE NW 28-16-14.

Mississippi

Two more wells at Tinsley as cold hampers all areas

Jackson. — Although snow and at times near-zero weather hampered activities in Mississippi last week, especially exploration work, as well as drilling developments, the Tinsley Dome field, Yazoo County, added 2 oil wells to bring to 16 the total of oil wells in that field.

Northeast of production, Plains Production Company abandoned Milner 1, NW NW 7-10n-2w, as a salt water hole, after swabbing. Total depth was 5418 feet but casing was perforated for testing at 4902-10 feet.

One new wildcat location was made during the week, this being Robert P. Lake's (of Tyler, Texas) Exem 1, C 13-11n-2w, Yazoo County, located on a 7500-acre block. Contract calls for the test to be drilling by February 18. Ralph E. Fair abandoned a Sharkey County wildcat, Frank B. Houston 1, C NE NE

12-10n-7w, at 4050 feet after electrical log was run.

Operation of the more than 60 geophysical units in Mississippi was greatly retarded by the weather, as was leasing activity. Frank Pettus continued to lease in Choctaw County around Section 19-17n-9e and J. P. Evans of Shreveport filed for record three wildcat blocks in Warren County, east and northeast of Vicksburg.

Florida

Levy County test has trace of oil from Eutaw

Miami.—Florida Oil Discovery Company's Sholtz 2, SW SW NE 9-15n-11e, Levy County, drilled to 5266 feet and which set 4-inch casing at 4232 feet and was perforated at 4150-79 feet, swabbed a trace of live oil in what was identified as near base of the Eutaw (Blossom). After swabbing for a time operators went into the 2-inch tubing with a bailer and bailed down as rapidly as any fluid came out of the formations and entered the hole through the perforations. Testing was still under way last week.

Rocky Mountain Fields

Sharp revival of interest in Lance Creek drilling

Casper, Wyo.—Sharp revival of interest in the Lance Creek field area, Niobrara County, Wyoming, came this week with the announcement of 7 locations. Continental Oil Company spotted 4 of the new wells, Ohio Oil Company accounted for 2 while the other was by Minnelusa Oil Corporation.

The upper Sundance sand horizon was topped at 4105 feet in Continental Oil Company's Rodeo 3 OPC-4, SE NE NE 35-36n-65w, eastern extension test at Lance Creek and it is coring below 4236 feet feeling for the Basal Sundance. This is an old Dakota producer, ½ mile ahead of present production on the eastern limit of the field, which is being deepened to test eastern extension of Jurassic and Pennsylvanian producing pools.

After deepening 50 feet further into the producing Madison lime horizon to 4155 feet, Mule Creek Oil Company's Sessions 1, SW NW NW 34-56n-97w, in the Garland field, Big Horn County, Wyoming, is again on pumping test to check production from this level. It is making around 300 barrels of oil per day. Originally completed in July, 1939, the well made 7½ barrels an hour on initial test at 4105 feet.

Deep Tensleep test well in the West Ferris field, Carbon County, Wyoming, Sinclair-Wyoming Oil Company's 4-E, C SE SW 29-26n-87w, is drilling below 3740 feet. This is the first well in the field to be drilled below the Sundance horizon and will test production in the Pennsylvanian sands expected at around 4000 feet.

Michigan

Basin wildcat has gas in stray sand

Mt. Pleasant, Mich.—The Basin accounted for only one of 18 completions for the week, but new starts and projected locations plus a wildcat gas strike focused more attention on the area than any time in the past 18 months.

Sun Oil Company's Switzer 1, C N½ NW NE 26-19n-3w, Hamilton Township, Clare County, developed an estimated 4,000,000 to 7,000,000 feet of gas in the Michigan Stray at 1254-62 feet. The hole was carrying a full load of water when gas was encountered in the open 8-inch hole. It repeatedly cleaned itself until killed with mud 3 days later. Sun Oil Company, which controls several thousands acres in the district, will case below the gas with 6-inch and continue drilling to the Dundee, about 3900 feet, as originally planned.

Switzer 1 is 19 miles east of the Temple field and 15 miles west of the Buckeye field, Gladwin County. It marked the first basin wildcat to develop gas or oil in probable commercial quantity in more than a year. While no infallible barometer, stray sand gas strikes frequently have been followed in Michigan by development of oil pools in deeper beds.

Vitalized by recent extensions, the

40 BELOW ZERO

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GULF BLDG. HOUSTON TEX.

ABERCROMBIE PRESSURE GAUGE

Wise field, Isabella County, has jumped from 5 active locations on January 1 to 31 locations. Originally completed for 20 barrels at 3738 feet, Wicklund Development Company's Leosh 1, SE SE SW, Section 8-16n-3w, about ¾ mile northwest of the developed field, acidized to 131 barrels net in 24 hours.

Two rotaries, Lupher Drilling Company and Twin Drilling Company, are now in Wise drilling the first 1500 feet to the casing point through the Marshall water zone, and a third test is to be started this week by Robert W. Atha. Atha purchased a new 5000-foot rotary but present contracts call only for drilling to the 6-inch casing point.

Shiffman & Stroms' Lund 1, Section 15-11n-6w, Muskegon County, checked Traverse top at 1842 feet and cased at 1849 feet after bailer tests showed 450 feet of oil.

South Overisel, Allegan County, will be placed under state proration February 1, P. J. Hoffmaster, supervisor of wells, announced after a hearing on the proposed order January 22. Virtually no opposition developed during the hearing. Proration will be fixed on the same basis as in other shallow lime fields of Southwestern Michigan, or 100 barrels per 10-acre unit well. Production in South Overisel is from the Traverse at approximately 1460 feet. Pay formation averages only 1 to 3 feet, but wells have developed potentials as high as 60 barrels an hour.

Valves

that close tightly, open easily, and stand hard service

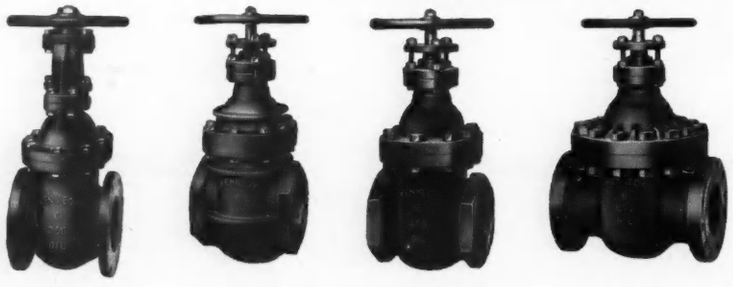

Fig. 170 400-lb. Test | Fig. 177 1000-lb. Test | Fig. 187 700-lb. Test | Fig. 192 1600-lb. Test

KENNEDY Valves are popular with operating men because they seat tightly, open and close easily, and can be depended upon for many years of trouble-free operation.

Kennedy Valves and Fittings for the petroleum industry are specially designed for exacting service. Special features of design, unusually sturdy proportions, clean, sharp, true threads on screwed valves and fittings, full unobstructed passages, and a complete range of types and sizes for all the standard requirements are some of the many advantages of standardizing on Kennedy Products.

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KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

California

Kern County wildcat opens new gas field

Los Angeles.—Richfield Oil Corporation's BVA 81-36, Section 36-31-25, opened a new gas area 25 miles southwest of Bakersfield, Kern County, when plugged back to the Jacalitos-Etchegoin formation at 5460 feet from 11,379 feet. The wildcat has an estimated 15,000,000 cubic feet of gas. It is in Buena Vista Lake.

Western Gulf Oil Company's KCL A-74-3, Section 3-32-26, second test for the Paloma field of Kern County, was nearing completion at 10,422 feet. Electric log revealed oil at 10,083-353 feet. The field is the most southerly in the mid-valley.

Tests Announced

The Texas Company announced plans for exploration of a 7000-acre block in east Fresno County. Other important tests expected early in the year may be by Tide Water Associated Oil Company in Section 22-24-23, between the Trico gas field and Alpaugh, Tulare County; Shell Oil Company in the Kettleman City area, and Union Oil Company on the south edge of the old Belridge field, Section 13-29-21, Kern County.

Union Oil Company's Bowerbank 4-23, wildcat in Section 23-29-24, the Buttonwillow - Goose Lake district of Kern County, developed a little blow of gas and died when plugged back to 11,672 feet and cleaned out. It had been drilled to 12,144 feet.

Wood-Callahan Oil Compay, recently drilling deep wells in the West Montebello field, was building derrick for Heyden 1, offsetting the company's Needham 1 in an area between the Edison and Mountain View fields, San Joaquin Valley. Heyden 1 is expected to go to 3400 feet, which would include the Margarita horizon.

Amerada Petroleum Corporation is completing rig site for No. 28-19, Section 17-19-16, in the northeast and east Coalinga pool, Fresno County. The operator's Ewing 22-20, Section 20-19-16, is coring below 8200 feet, having topped the Kreyenhagen at 7094 feet. Bandini Petroleum Company's No. 46-18B, Section 18-19-16, penetrated base of the Gatchell at 7972 feet and encountered oil stained sand at 8380-84 feet. It is coring below 8500 feet.

Completion at Wasco

In the deep Wasco pool, Kern County, Standard Oil Company's Mushrush 3 was completed for 3300 barrels of 36.3-gravity oil a day from 13,130 feet. It is slightly higher on the structure than the Continental Oil Company's KCL A-2, discovery well to the southeast. In the new Strand pool, Tide Water Associated Oil Company's Strand KCL E-3-7, came in for 2000 barrels daily at 8330 feet.

No showings of importance are reported at General Petroleum Corporation's BVA 1, wildcat in Section 1-32-24. It continues to core ahead in hard shale below 10,850 feet.

UNITED STATES WELL COMPLETIONS

Arkansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Columbia County (Magnolia)—		
Normandie Oil Corp., H. E. King 1, 20-17-20	500	7630
Placid Oil Co., J. W. Booth Unit 1, 19-17-19	250	7592

California

Company, Well and Location	Init. Prod. Bbls.	Depth
Los Angeles County (East Coyote)—		
Union, Hole 22	75	5388
Los Angeles County (Dominguez)—		
Shell, Reyes 16	54	4100
Los Angeles County (West Montebello)—		
Star Pet. Co., Prescott 1	300	7626
Texas Co., Wilcox 3	240	7698
Los Angeles County (Potrero)—		
Basin Oil, Potrero 7	444	3575
Los Angeles County (Santa Fe Springs)—		
General Petroleum, Santa Fe 224	160	6800
Los Angeles County (Wilmington)—		
Bond Pet. Co., Star (LB) 1	no est.	3337
General, Harbor (LB) 36	325	2945
Interstate Inv. Co., Harbor (LB) 3	100	3210
North Wilmington, Meeker 1	45	3645
Union Pacific, UP (LB) 125	175	3588
UP (LB) E-21	1323	3965
Kern County (Belridge)—		
Belridge Oil, No. 4	965	8515
Fresno County (Kettleman N. Dome)—		
Standard, No. 76-17Q	2375	8145
No. 32-27Q	1270	7800
Kern County (Midway Sunset)—		
Texas Co., No. 37	162	3209
Kern County (Mountain View)—		
Hogan Pet. Co., Symons-C.C.M.O. 3	284	6005
Kern County (Strand)—		
Tide Water Associated, Strand-KCL E-3-7	1954	8330
Kern County (Ten Section)—		
Shell, KCL A-4-28	3504	8222
Kern County (Wasco)—		
Standard, Mushrush 3	3300	13,130
Ventura County (Shiells Canyon)—		
Texas Co., Shiells 138	167	2993
Santa Barbara County (Santa Maria Valley)—		
Union, O'Donnell 2-5	970	5640
Ventura County (Ventura Avenue)—		
British-American Oil, Hartman 7	850	8400
Tide Water Associated, Hartman 20	492	7448
Los Angeles County (Richfield)—		
Desert Glow, Devon Shore 5	*	6062
Kern County (Greeley Area)—		
Standard, KCL-12-6	*	11,942
Kern County (Jasmine Area)—		
Amerada, Core Hole H	*	1823

Illinois

Company, Well and Location	Init. Prod. Bbls.	Depth
Clay County—		
Wisner Oil Co., Daly 8, nw ne sw 6-2n-8e	120	3124
Pure, Stanford 1, c e ½ ne se 12-2n-7e	87	3067
Coles County—		
Koder, Horsley Hrs. 1, se nw ne 31-12n-10e	*	1280
Edwards County—		
Whisenant-Trenchart, Dunk 1, ne se se 36-2s-10e	*	3275
Fayette County—		
Gulf, Whitehead 2, nw sw ne ne 1-5n-2e	78	1630
Small 16, sw sw ne 36-6n-2e	185	1616
Ohio, Swarm 9, ne se se 36-6n-2e	204	1619
Williams 3, nw nw se 36-6n-2e	206	1614
Nash Redwine, Logue 4, ne se se se 13-7n-2e	90	1564
Texas, O'Neathery 2, c e 1/3 of ne nw nw 6-6n-3e	126	1552
Irey 2, 49 ft e of ne nw nw 7-6n-3e	42	1582
Kimbrell 2, ne nw sw 19-7n-3e	*	1934
Carter, Sinclair 4, nw sw ne 2-8n-3e	120	1605
Lewis Clements, Woods 2, 38 ft s of nw se se 16-8n-3e	270	1614
Woods 3, ne se se 16-8n-3e	230	1625
Woods 4, se ne se 16-8n-3e	400	1605
Woods 5, se se se 16-8n-3e	400	1505
Woods 6, sw ne se 16-8n-3e	320	1599
Woods 6, nw ne se 16-8n-3e	340	1581
Woods 8, ne ne se 16-8n-3e	360	1600
Woods 9, 37 ft w of sw se se 16-8n-3e	400	1552
Carter, Mills 10, nw nw sw 28-8n-3e	354	1584
McCloy 4, ne ne ne 32-8n-3e	342	1558
Ireland 14, nw nw nw 33-8n-3e	300	1524
Gallatin County—		
Egyptian Tie & Timber Co., Fee 1-A, sw nw ne sw 15-8s-10e	*	241
J. Coates, Logan 1, sw nw sw 16-9s-9e	14	1815
B. Fields et al, Greene 6, ne se se 17-9s-9e	31	1805
Johnson County—		
Tunnell Hill, Bonar 1, c e ½ w ½ sw ne 30-11s-3e	*	4165
Lawrence County—		
Bowman et al, Lawless 1, sw ne ne sw 18-4n-10w	¶7	1108
Marion County—		
Texas, Farthing 12, nw ne sw ne 4-1n-2e	154	1887
Tate 2, c e ½ sw ne 7-1n-2e	707	2060
E. F. Jones, Kisiala 1, nw ne nw sw 9-2n-1e	*	3109
Texas, Jett 28, c n ½ sw sw 16-2n-2e	133	2085
Martin 9, c n½ se se 17-2n-2e	119	2086
Kingwood-Bell, Shanafelt 21, sw sw ne ne 20-2n-2e	3337	3425
Shell, Salem State Bank 6, sw nw sw se 20-2n-2e	3582	3413
Texas, Young 21, nw nw se ne 20-2n-2e	3035	3429
Magnolia, Chitwood 45, 75 ft s of ne nw se 21-2n-2e	105	2100
Young 67, 232 ft s of ne sw sw 21-2n-2e	192	2310
Inland Drlg. Co., Moser 1, sw sw ne 27-2n-2e	*	1150
Magnolia, Young 70, c e ½ nw nw 28-2n-2e	188	2090
Texas, Kleinschmidt 12, 70 ft n of nw sw ne 28-2n-2e	112	2085
W. C. McBride, Lee 17, sw sw ne se 29-2n-2e	6224	3428
Texas, Stroup 13, se se sw 20-2n-2e	140	1830
Magnolia, Shanafelt 28, nw nw se ne 32-2n-2e	96	1853
Texas, Farthing 8, c s ½ of nw se 32-2n-2e	224	2025
Friesner 15, c n ½ se nw 32-2n-2e	147	2000
MacRoberts 7, nw sw se ne 32-2n-2e	147	1845
Richardson 13, c s ½ ne sw 32-2n-2e	224	1990
Stonecipher 13, c n ½ se sw 32-2n-2e	322	2017
Richland County—		
Pure, Compton 1, c n ½ se ne 36-5n-9e	986	2920
Saline County—		
Simon Henry et al, Seton 1, c sw sw se 1-8s-7e	*	2919
Wabash County—		
F. M. Blair, Jr., McDonald Hrs. 1, Lot 5, Blk P, 9-2s-13w	62	2459
Magnolia, Fifer 1, ne se nw 17-2s-13w	*	2843
Southern Ill. Ref. Co., Shauff 1, nw nw ne ne 31-2s-13w	*	2482
Washington County—		
Magnolia, McConnell 3, ne sw ne 15-3s-3w	35	1268
Wayne County—		
Pure, McCracken 1, c s ½ nw se 33-2n-8e	34	3075
Texas, Koontz 1, nw sw se 33-2s-7e	32	3355
Stocker, Creighton 1, se sw nw 9-2s-8e	*	3832
Puckett, Oakley 3, nw nw ne 34-2s-8e	220	3396
Southern Pet. Corp., Walker 3, sw se sw 9-3s-9e	150	3416

[Continued on page 220]

Summary of Drilling Operations in the United States, Week Ending January 27, 1940

	WELLS COMPLETED							*NEW WELLS STARTED				
	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1940	Total this Date 1939	This Week	Total this Month	Total 1940	Total this Date 1939	Year Total 1939
Alabama	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arkansas	2	2	.....	.....	750	18	29	3	7	7	16	223
California	27	24	.....	3	19,534	130	92	28	97	97	101	1,136
Colorado	.....	.....	.....	.....	.....	2	2	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	.....	1	1	1	.....	.....
Illinois*	67	54	2	11	26,954	336	259	91	376	376	.....	893
Indiana	10	5	3	2	445	42	11	.....	.....	.....	.....	.....
Kansas	27	23	.....	4	29,845	144	101	20	117	117	115	1,583
Kentucky	4	2	.....	2	60	32	77	2	2	2	.....	.....
Louisiana	15	11	1	3	3,472	147	75	28	102	102	66	1,449
Michigan	18	14	.....	4	2,750	134	91	16	135	135	63	1,419
Mississippi	4	2	.....	2	873	16	.....	1	1	1	.....	.....
Montana	2	2	.....	.....	163	18	7	.....	.....	.....	.....	.....
Nebraska	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico*	14	12	.....	2	3,663	81	61	13	69	69	.....	293
New York	21†	21†	.....	.....	122	106†	47†	.....	.....	.....	.....	.....
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	13†	4†	4	5	16	107†	79†	.....	.....	.....	.....	.....
Oklahoma	28	12	2	14	7,715	181	171	43	159	159	159	2,059
Pennsylvania	42†	29†	7	6	29	204†	119†	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Texas	186	130	11	45	107,177	925	851	201	968	968	787	10,269
Utah	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia	18	2	13	3	15	72	51	.....	.....	.....	.....	.....
Wyoming	4	4	.....	.....	180	18	26	.....	.....	.....	.....	.....
Total this week	502	353	43	106	203,763	2,713	2,154	447	2,036	2,036	1,307	18,752
Total last week	539	363	33	143	158,300	2,211	1,621	530	1,176	1,176	538	18,752
Total this year	2,713	1,938	175	600	903,710	2,713	.....	.....	.....	.....	.....	.....

*¶This tabulation includes those states where weekly data are available; figures for Illinois date from October 15, 1939; New Mexico from August 1, 1939.
† Includes water-input wells.

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth

ILLINOIS—*Continued*

White County—

T. F. Morrow, Cox 3, nw ne ne 6-4s-8e 6 3285
Pure, Martin 1, c w ½ sw nw 7-6s-9e 10 3130
Penn.-Ill., Porter 4, e ½ se se 12-6s-8e 830 3135
Eason & Angle, Storms 9, se sw se 14-6s-9e 216 2267
Skelly Oil, Storms 2, nw sw sw 14-6s-9e 166 2258
Bates & Lichlyter, Aux 1, ne ne sw 27-6s-9e . . . . . ¶3 2733

Indiana

Daviess County—

Hartman et al, White 2, nw sw nw sw 22-2n-7w . . . . . • 352

Gibson County—

Midwest Dev., Bryant 2, c nw ne 15-2s-9w 155 1370
Papoose Oil Co., Cooper 1, ne ne c sw 18-3s-13w 115 2499
Cooper 2, se se sw 12-3s-14w.... 15 2881

Posey County—

Earl Hollingsworth, Keck 2, ne se se nw 34-3s-14w 75 2825
Superior Oil, New Harmony Realty Corp. 23, 100 ft s sw ne sw 10-5s-14w 85 1519

Spencer County—

Gulf Refining, Wright 1, nw nw 29-7s-6w . . . . . ¶10.83 903
Kelly et al, Williamson 1, sw ne nw ne 30-7s-6w . . . . . ¶4.42 900

Vanderburgh County—

K. Bixby, Tr., Ziss 2, c w l ne nw 31-5s-11w . . . . . ¶ 415

Vermillion County—

John L. Steelle, Darroch 1, c w l se sw 9-17n-10w . . . . . • 1509

Kansas

Barton County—

Sinclair-Prairie, Kroutwurst 1, swc 34-16-11w . . . . . • 3445

Butler County—

Rex et al, DeMoss "B" 3, sw nw se 5-28-7e 40 2742

Cowley County —

Brewer et al, Brown 2, c w½ se nw 33-30-4e . . . . . • 3321
Moore Oil Co., Mohannah 1, sw sw se nw 6-30-8e . . . . . • 3200
Jones Bros. et al, Chanze 2, ne sw ne 21-32-5e 296 3056

Ellis County—

Dickey, Henderson "A" 3, c n½ sw ne 7-11-17w 3000 3429
Cities Service, Rumsey 13, sw ne se 23-11-17w 3000 3486
Bay Petroleum Co., Riddler "B" 1, se sw se 1-11-18w 3000 3430
Darby, Hadley "A" 4, c n½ sw se 12-11-18w 3000 3340
Skelly, Kempe 1, c s½ se ne 12-11-18w 1799 3376

Ellsworth County—

Spencer et al, Patzner 4, cwl sw ne sw 31-17-10w 33 3274

Greenwood County—

Landon, Johnson 8, se nw ne 22-24-12e 15 1636

Harvey County—

Aylward Producing Co., Wiley 2, sec ne 18-23-3w 10 3375

Lyons County—

Davidson, Jeck 1, c n½ se nw 32-21-12e 15 1936

Reno County—

Wilcox, Montford 2, nec sw 12-23-4w (otd 3434 ft) 440 3549

Rice County—

Mission Corp., Habiger 8, cwl sw ne nw 5-18-10w 408 3245
Skelly, Vokland "B" 8, cel ne sw nw 5-18-10w 345 3214
Vickers, Roesler 3, cel se nw sw 5-18-10w 1089 3244
McBride, Hodge 1, c s½ se ne 25-20-6w 710 3325
Carlock, Renollett 1, se nw se 36-20-8w 501 3325

Russell County—

Hartman et al, Boxberger "B" 1, c w½ sw se 14-14-14w 2583 3060
Texas, Boxberger 2, c w½ se se 22-14-14w 1990 3060
Billings et al, Holl 2, se ne se 21-14-14w 3105 3106
Stanolind, Rein 3, csl sw nw nw 25-14-14w 1193 3028
Skelly, Neidens 11, sec 32-15-13w.. 275 3328

Sheridan County—

Cities Service, McGinnis 1, ne swc nw 10-9-27w . . . . . • 4865

Stafford County—

Stanolind, Harbeson 5, c w½ nw nw 11-24-11w 3000 3767

Kentucky

Daviess County—

Globe Oil & Gas, Clark 11..... 30 1243
Forsome Oil Co., Iglehart 2..... 30 1468

Henderson County—

Niagra O&G Co., Tillotson 3..... • 600

McLean County—

South Penn, Nall 10 . . . . . • 2130

North Louisiana

Caddo Parish (Rodessa)—

M. M. Travis & Red Iron Drlg. Co., Chandler 2, 5-23n-15w 250 6107

Caddo Parish (Pine Island)—

Arkansas Fuel, Hunter Oil Co. 4, 1-20n-16w 50 1597
C. C. Lowery, Huckabay 1, 7-20n-15w 20 1486
McDonald & Campbell, Natalie 6-A, 10-20n-15w 25 2205
Stanolind, Alexander 1, 21-21n-15w • 1828

Union Parish (Monroe)—

Memphis Nat. Gas Co., Edwards 2, 11-21n-3e . . . . . ¶3 2188

South Louisiana

Bancroft—

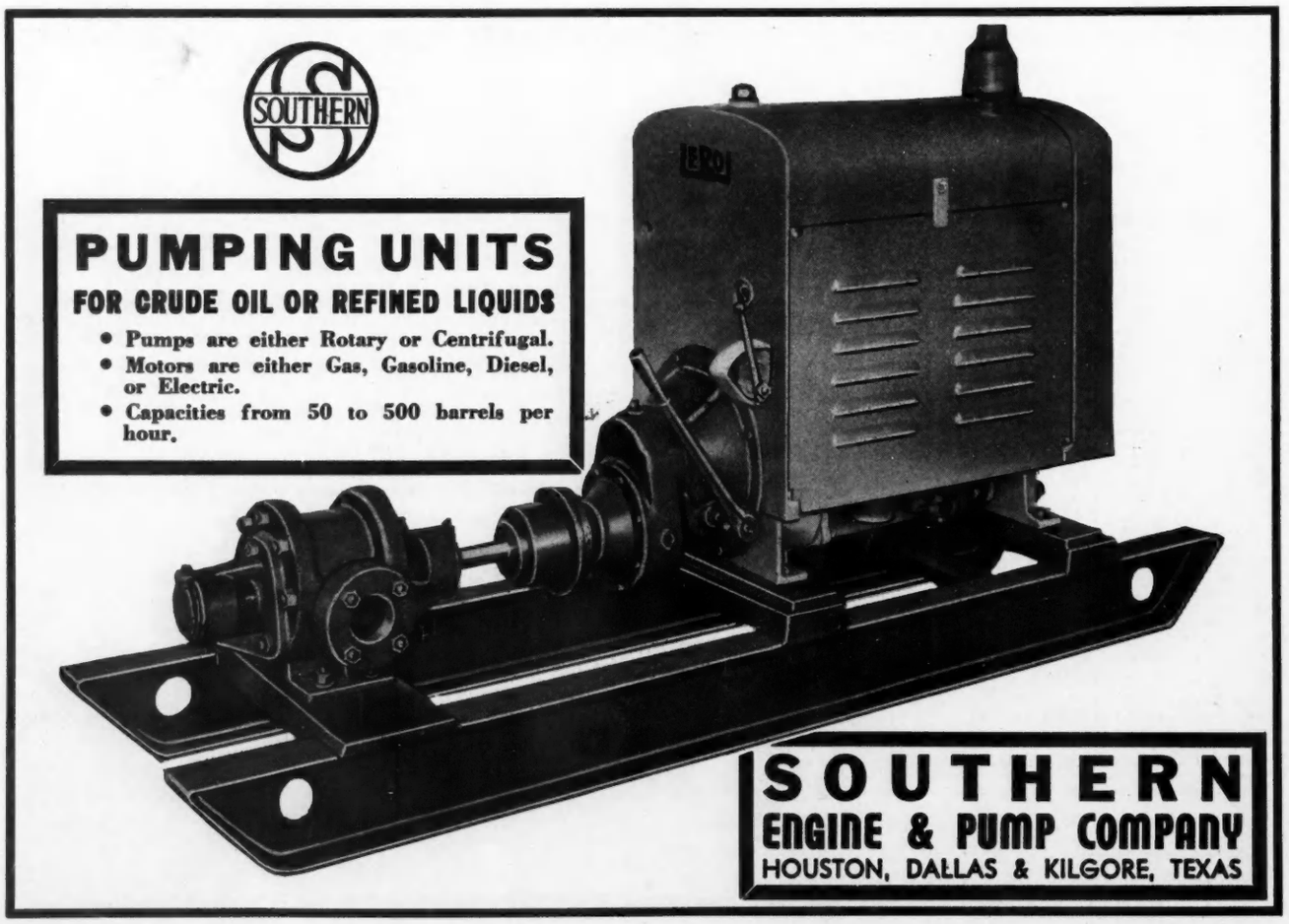
Republic, Columbia Land & Timber Company 14 . . . . . 208 7287
Whiteman 2 . . . . . 209 7350

Black Bayou—

Shell, Watkins 43 . . . . . 522 5239

East Hackberry—

Stanolind, Gulf Land 29..... • 8265
Union Sulphur, Doiron 2 . . . . . 574 7255


SOUTHERN
PUMPING UNITS
FOR CRUDE OIL OR REFINED LIQUIDS
• Pumps are either Rotary or Centrifugal.
• Motors are either Gas, Gasoline, Diesel, or Electric.
• Capacities from 50 to 500 barrels per hour.
SOUTHERN
ENGINE & PUMP COMPANY
HOUSTON, DALLAS & KILGORE, TEXAS

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Eola—		
Amerada, Sclater 1	576	8583
Grand Lake—		
Superior, State 6	303	8385
North Crowley—		
Humble, Ohlenforst 5	735	8487
Allen Parish—		
Phillips, Industrial Lbr. Co. 1, Ten Mile area, 1-4s-5w	•	10,305

Michigan

Allegan County—		
Lentz & Miller, Beltman 2, ne se sw 27-4n-14w	35	1499
Red-Man Oil Co., Costen 1, c e se nw 34-4n-14w	750	1437
W. R. Borough, Shuck 4, se se ne 3-4n-13w	100	1694
Socony-Vacuum, Kluinsteker 1, ne nw nw 10-4n-13w	340	1623
Isabella County—		
Pure Oil Co., Wille 16, c n se ne 4-14n-6w	115	3634
Kalamazoo County—		
Fisher-McCall, Ballett 1, sw nw ne 32-1s-12w	•	1348
Kent County—		
Smith Pet. Co., Thurkettle 1, sw se sw 29-7n-12w	250	1890
Wolverine Nat. G. Co., Burgess 3, se ne nw 32-7n-12w	100	1909
J. E. Flanigan, McShane 1, ne nw sw 33-7n-12w	60	1860
Marks & Sherers, Peck 2, sw se nw 13-6n-12w	•	1923
Alexander Oil Co., Platt 1, nw se se 14-6n-12w	90	1910
Mason County—		
C. K. Dean, Hinckley 1, c ne ne 22-17n-15w	•	2020
Ottawa County—		
Twin Drilling Co., McKay B5, sw sw sw 24-7n-13w	100	1903
McKay C1, ne ne ne 26-7n-13w	110	1889
American Drilling Co., Zoke 2, sw se sw 24-7n-13w	200	1869
Smith & Welshs, Adema 1, sw se nw 25-7n-13w	100	1865
Adema 3, sw ne nw 25-7n-13w	400	1859
Van Buren County—		
Fisher-McCall, Solomon 1, se se ne 9-4s-14w	•	1107

Mississippi

Sharkey County—		
Ralph E. Fair, Houston 1, 12-10n-7w	•	4050
Yazoo County—		
Plains Prod. Co., Milner 1, 7-10n-2w	•	5418
Union Prod. Co., Perry 2, 24-10n-3w	480	4651
Yazoo County (Tinsley Dome)—		
Union, Jennie Stevens 3, 13-10n-3w	393	4486

Montana

Glacier County (Cut Bank)—		
Wilkinson & Potter, Allotted 4 127, csl lot 1, sec 12-32n-5w	70	3035
Toole County (Kevin-Sunburst)—		
A. Beardslee, Swears 12, csl se nw 9-35n-2w	93	1646

New Mexico

Eddy County (Wildcat)—		
G. R. Burke et al, State 1, sec nw 36-16s-24e	•	2450
Eddy County—		
Carper-Miles-Tallmadge, State 1, nw se sw 32-17s-30e	375	2870
Continental, State 2-M-2, sec 2-18s-29e	280	2688
State 1-0-16, ne nw ne 16-18s-29e	173	2652
R. W. Fair et al, Watson-Smith 2, se ne se 4-18s-29e	480	2560
Franklin Pet. Corp., Coppedge 2, nwc 5-18s-30e	480	2860
R. J. Johnston et al, Travis 1, se nw nw 26-17s-27e	•	561
Kersey & Co., Creek 1, nw ne nw 23-18s-30e	300	3281
Welch & Welch, State 2, ne nw se 20-17s-28e	60	1960
Lea County (Hardy)—		
E. G. Rodman et al, Hardison-Humble 2, sw nw ne 34-21s-37e	240	3749
Lea County (Maljamar)—		
R. W. Fair et al, Baish 1-B, c se se 22-17s-32e	600	4015
Lea County (Mattix)—		
Skelly, Sherrill 2, c e½ ne se 31-24s-37e	192	3535
Lea County (Skelly)—		
Skelly, H. O. Sims 7, c ne nw 3-23s-37e	305	3637
Lea County (Vacuum)—		
Magnolia, State-Bridges 51, c sw sw 12-17s-34e	179	4695

New York

Allegany County—		
Ebenezer Oil Co., Herrick farm, Bolivar	10	1325
Conklin & Reeland, Swarthout farm, Bolivar	20	1372
Forest Oil Co., Ackerman farm, Bolivar	15	1392
R. B. Moore No. 6, Daniels farm, Bolivar	8	1386
Ebenezer Oil Co., Emerson farm, Scio	8	1053
Dawson Oil Co., Norton farm, Scio	7	1290
Messer Oil Corp. "M," Garrison farm, Alma	9	1540
Bradley Prod. Corp., Monitor farm, Alma	6	1345
Pure Penn Oil Co., Geo. Hill farm, Scio	5	1268
E. J. Phillips et al, Phillips farm, Bolivar	7	1390
L. H. Thornton et al, Brown farm, Alma	10	1352
Shallow Sand Oil Co., Harlan Thomas farm, Scio	6	485
Cam Oil Corp., Peavy farm, Genesee	2	1270
Clair Oil Co., Carrier farm, Wirt	5	1386
Adolph Vossler, Quick farm, Alma	4	1560
WATER (INTAKE) WELLS		
Sloan & Zook, McDivitt farm, Bolivar	..	1270
Forest Oil Co., Ackerman farm, Bolivar	..	1426
Andrews Bros., Minnum farm, Alma	..	1520
Bradley Prod. Corp., Monitor farm, Alma	..	1424
L. E. Norton, Coats farm, Scio	..	1272
Shallow Sand Oil Co., Thomas farm, Scio	..	478

*Failures; †Junked; ¶Million cu. ft. gas.

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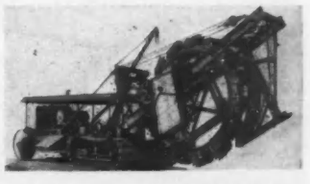

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United States Well Completions—*Continued*

Ohio

Company, Well and Location	Init. Prod. Bbls.	Depth
Cuyahoga County—		
Benedum-Trees, Parker 1	¶.50	2891
Guernsey County—		
Hayes Ferguson, Eagleson Hrs. 1	*	1252
Jewell Co., Smith 2	*	1475
Knox County—		
Ohio Fuel G. Co., Bebout 1	¶.04	2533
Licking County—		
Early & Davis, Lethes 3	6	700
Murphy Pet. Co. et al, Miller 1	*	2570
Medina County—		
Marine Trust Co., Ross A20	5	391
Ross A23	5	357
Ross O25	I	393
McCrea et al, Pillman 2	*	5071
Muskingum County—		
Gas Producing Co. of Ohio, Sowers 1	*	4120
Stark County—		
Ohio Insulator Co., Albright 1	¶.63	3963
Obermiller, Hall 1	¶.17	2880

"I" indicates water imput well.

Oklahoma

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo County—		
Stephens, Wilhite 1, ne se se 28-6n-10w	1185	3451
Comanche County—		
Evans, Maloney 4, c e½ se se 23-2n-11w	*	150
Creek County—		
Sinclair Prairie, Yarhola 9, se sw ne 9-17n-7e (opbd 2745 ft)	6	2760
Tilley, Hayworthy 1, sec ne 1-17n-9e	*	1890
Jackson, Jones "B" 1-A, nw nw sw ne 26-18n-7e	*	594
Garvin County—		
Robinson et al, Clay 1, swc nw 21-4n-3e	*	3503
Jackson County—		
Pendleton-Vaughn, Cole 1, ne nw nw 3-1n-20w	2	1657
Kiowa County—		
Phillips Petroleum Co., Warner 1, nec se 19-7n-17w	3360	1057
Lincoln County—		
Mid-Continent, School Land 2, c se ne 16-13n-6e	¶17.8	4084
Okfuskee County—		
Parker Drilling Co., Welty 1-A, swc ne 2-11n-8e	405	3400
Pace et al, Key 1, ne se sw 11-11n-8e	12	3443
Shell, Apperson 1, nwc sw 9-12n-10e	*	3752
Osage County—		
Norris, Osage 1, sw swc se 15-21n-12e	15	1306
Pontotoc County—		
Pierce, Pettyjohn 1, se sw sw 1-1n-7e (otd 1496 ft)	24	1576
Adair, Brown 1, sec ne 17-4n-8e	*	1772
H. & M. Drlg. Co. et al, King 1, sw swc se 32-5n-8e	*	885
Pottawatomie County—		
Pauner, Johnson 2, sw se sw 27-6n-3e	*	3915
Iglehart, Phillips "A" 2, se ne nw 4-6n-5e	*	83
H. Phillips, Bradshaw 4, swc se 21-7n-4e	2360	4322
G. & M. Supply Co., Mejah 1, se nec sw 28-7n-4e (otd 4250 ft)	*	4371
Magnolia, Billington 6, ne sw ne 21-7n-5e	60	2748
Dunnett, McDaniels 1, nw sw se 31-11n-4e	260	4459
Seminole County—		
Atlantic, Dameron 3, se ne nw 22-6n-6e (otd 3528 ft)	28	3458
Winona, Porter 1, se ne sw 30-6n-8e	*	2683
Viersen, Thomas 1, se ne ne 34-7n-5e	*	4408
Cities Service, Wilson 2, se nw ne 34-9n-6e (otd 4050 ft)	*	4235
McIntyre, Campbell 1, se ne se 24-10n-7e	*	3524
Stephens County—		
Pace, Pace 18, se ne nw nw 28-2s-7w	¶.1	1018

Pennsylvania

Company, Well and Location	Init. Prod. Bbls.	Depth
Bradford District—		
Grant & Mohan Oil Co., Bing 486-7	1	....
Cora M. Simon, Corwin	2	....
M. Hungiville, McCullough	1	....
Duke Producing Co., Duke	1	....
J. P. Kervin, fee	½	....
Bell & Loop, Hoffman estate	1	....
Messer Oil Corp., Redfield	3	....
Forest Oil Corp.	1	....
Forest Petroleum Corp.	2	....
Niagara Oil Corp.	2	....
Bradford Transit Co., 10 wells	10	....
Bradford District (Water Intake Wells)—		
Pine Run Oil Co., Bing 130-8-2-3-4-6	..	....
Forest Oil Corp.	..	....
Forest Petroleum Corp.	..	....
Niagara Oil Corp., 4 wells	..	....
Middle District—		
Richard F. Krear, John Lusher	½	....
Titusville Trust Co. & Fleming Lot 3, 192	½	....
Butler-Armstrong District—		
John McEvoy et al, Annie Clafferty	¶	....
New York-Penn. Gas Field—		
New York State Natural Gas Co., F. Husted	*	....
Cunningham Natural Gas Co., E. Roche	¶	....
New Penn Development Co., J. A. Torrey	*	....
New Penn-McKean, J. J. Biggens et al	*	....
New York State Natural Gas Co., May Taubman	¶	....
Clancy et al, McEwen etal	*	....

Southwestern Pennsylvania

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegheny County—		
F. W. Findley, Loffert 1	*	2455
Armstrong County—		
Peoples Nat. Gas Co., Snail 1	2	3645
Shelocta O&G Co., Reefer 1	¶.05	3675
J. Wray et al, Mateer 3	*	3450
Clarion County—		
T. Swartzfager et al, George 2	¶.09	2858
Greene County—		
Freeland & McClure, Allison 1	¶.13	1201
Washington County—		
Equitable Gas Co., West 2744	¶.12	2575

*Failures; †Junked; ¶Million cu. ft. gas.

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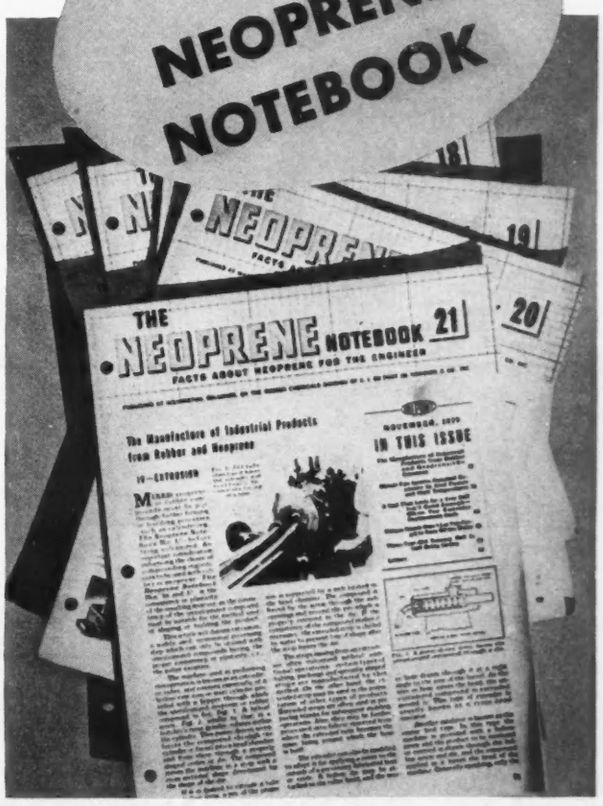

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United States Well Completions—*Continued*

East Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Joiner Area—		
Hunt Oil Co., Bradford 15-F (55.8-ac)	360	3624
Alex McCutchin et al, Jarvis 11 (85.8-ac)	†	3723
Kilgore Area—		
J. M. Chandler et al, I&GN 1 (2.91-ac.)	1500	3717
I&GN 2 (2.32-ac)	1500	3723
Milford Oil Co., Smith 6 (13¼-ac)	8000	3552
P. F. Rutledge et al, State 4	2000	3582
State 5	1200	3590
Longview Area—		
Ray H. Hedge et al, Skipper-Garner 1-A	1500	3513
Idaho Oil Co., McGrede 2 (6-ac)	3000	3636
Roosth & A. S. Genecov, Richey 7 (8-ac)	5000	3619
Anderson County (Cayuga)—		
Tidewater-Seaboard, Bowyer 2 (300-ac)	•	4082
Leon County (Long Lake)—		
Carter-Gragg Oil Co.-FHE Oil Co., Standard of Kansas 1	74	5260
Marion County (Rodessa-Jefferson)—		
Ark. La. Gas Co., Barnes 1, Richardson sur	¶30	6087

Texas Panhandle

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Northern Nat. Gas Co., E. L. Clark 1	¶12	2996
J. F. Vicars 1	¶6.4	3012
Texas Co., Boney-Magnolia 16	754	3092
Gray County—		
Humble, Haggard 8	429	3250
King Oil Co., Horner 10	548	3262
North Vallmert 12	432	3289
Magnolia, E. Haggard 14	255	3300
Shell, Finley-Hoffman 10	230	2931
Hutchinson County—		
Alma Oil Co., Whittenburg 8-D	30	3000
Moore County—		
Phillips, Wm. Kane 1	¶67.7	3380

North Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Hull-Silk)—		
Blackwell O&G Co., Wilson-Christie 5	1984	4353
C. B. Christie et al, Little 3-B	1120	4382
Cities Service, Wilson 25-C	616	4411
Bert Ligon et al, Anderson 5	1152	4012
Little 3-B, sec 2	816	4384
Pet. Producers Co., Johnson 2-A, sec 2	952	4352
Louis Sikes et al, W. Ford 3	960	4422
Archer County (K-M-A)—		
C. H. Staley et al, Mangold 18, blk 31	576	3865
Archer County—		
E. P. Bowen et al, Portwood 2-C, sec 2411	•	1456
King Oil Co., Rogers 11, sec 1600	10	1290
Pace Pet. Co., Abercrombie 29-A	11	1018
Rancho Oil Co., Prideaux 15, blk 26	•	689
Southern Pet. Explo. Co., Carson 2-S	50	1293
Carson 3-S, sec 1	49	1300
Baylor County (Seymour)—		
British-American O. P. Co., Fowlkes 2	1087	2540
Clay County—		
Gorman & McCullough, Duncan-Texaco 8, blk 15	•	1215
Clay County (Wildcat)—		
Ted Norwood et al, Taylor 1, blk 39	•	1300
Cooke County—		
King Oil Co., Jos. Weisman 5	•	797
Pace Pet. Co., Paulter 2	•	1443
Whitfield-Pearson-Grimes, H. Sickling 1	•	1955
B. Voth 10	103	1685
Cooke County (Walnut Bend)—		
Ed. Cox-Jake Hamon, K. Neu-Texaco 11-B	984	4926
Sinclair Prairie, Best 17	512	5004
Cooke County (Wildcats)—		
Big Indian O&D Co., Morton 1	•	2517
Chas. E. Lynch et al, Hellman 1	•	1203
Pete Sarron et al, Strong 1	•	2007
Jack County—		
Burtner & Fleeger, Winn 2	399	3192
Wichita County (K-M-A)—		
Geo. Cooper et al, Waggoner Bros. 50, blk 12	712	3775
E. C. Oil Co., Mangold 21	680	3855
J. E. Farrell & Co., Waggoner Bros. 19-A, blk 23	1120	3840
W. H. Hammon-Hanlon-Buchanan, Hammon 6	912	4067
Tidewater Associated et al, Ferguson 13	520	3860
Wichita County—		
Bell O&G Co., Evans 9-B	20	1333
Geo. Proctor et al, Foster 2-C, sec 1	•	2030
Underwood Oil Co., Rogers 5	34	1208
Rogers 6	29	1213
Rogers 7	•	1482
Wilbarger County (Consolidated)—		
J. A. Woods et al, Womack 4, sec 1	1304	3788
Wilbarger County—		
W. H. Hammon-Hanlon-Buchanan, Owens 1	977	3195
Lido Oil Co., Waggoner Est. 23-C	43	2601
Young County—		
Cosden Pet. Corp., Raley 1	¶3	2887
Lawsonia, Inc., Waggoner Est. 1-AA	•	1660
L. A. Long et al, King-Wooten 1-C, sec 1966	525	3914
Panhandle Ref. Co.-Rankin, Taylor 3, sec 1974	30	2829
E. W. Robitaille et al, Vaughn 2-A, sec 1	534	4022
E. D. Willis et al, Stewart 8-B	39	835

South Texas

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Bexar County—		
Tarver, Lamm 1-A (WC), 2 mi se of Losoya	•	1692
Guadalupe County—		
Evjen, Brawner 1 (WC), 5 mi e of Kingsbury	•	2373
Wellington, Bravo 1 (WC), 6 mi se of Zoboraski field	•	3787

[*Continued on page 226*]

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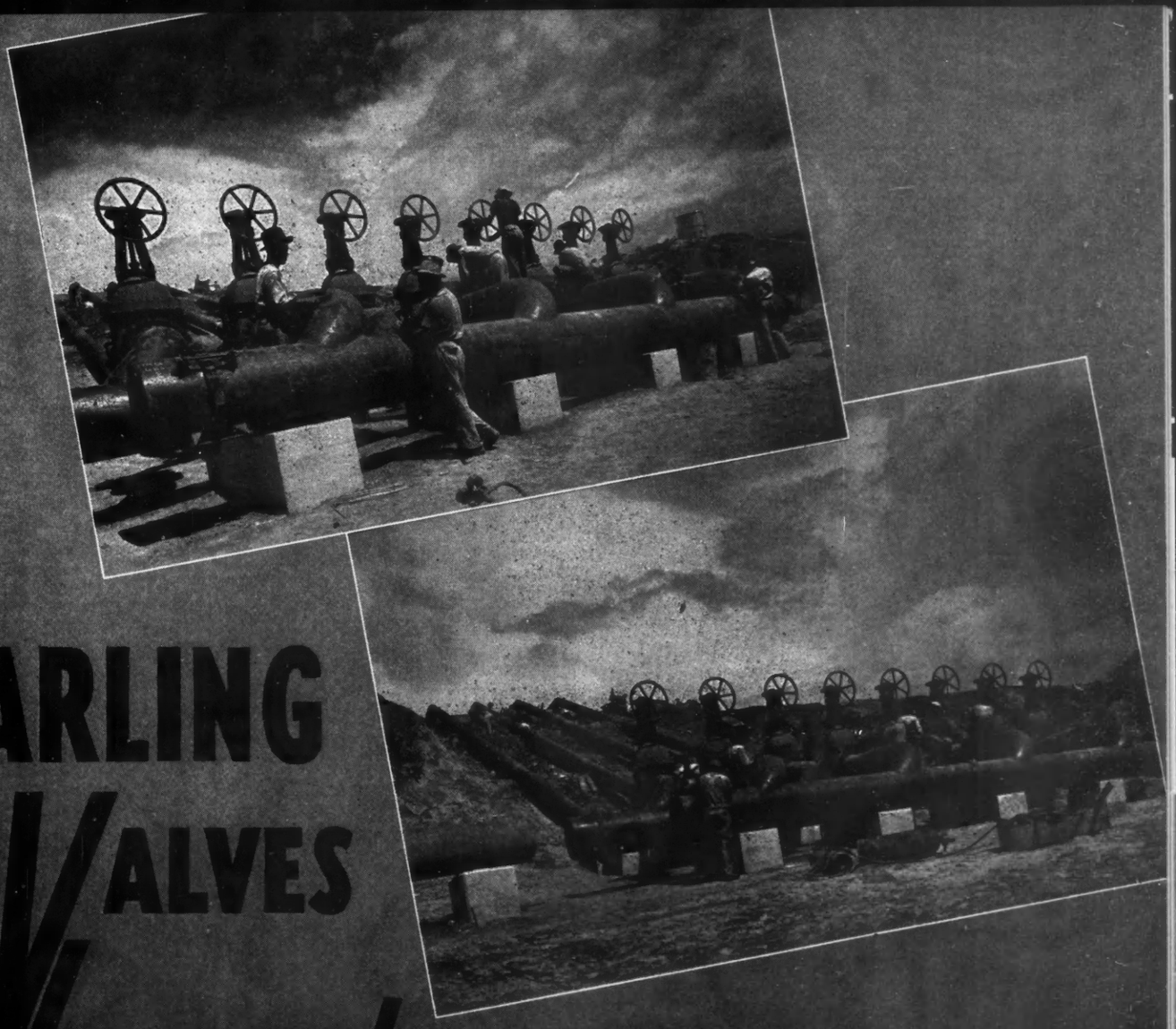

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United States Well Completions—*Continued*

SOUTH TEXAS—*Continued*

CORPUS CHRISTI DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Bee County—		
Wood, Mauldin 1 (WC), 3 mi n of Mineral (Grayburg)	*	3600
Jackson County—		
Magnolia, West 37-A (West Vanderbilt)	1250	5130
Texas, Ross 1 (Ganado)	125	5105
Live Oak County—		
Brauer, Holland & Smith, Bonham 8 (White Creek)	75	1525
Refugio County—		
Coronado, Rooke 18 (La Rosa)	550	6345
Rutherford & Royal, Shirmer A-4 (La Rosa)	500	6339
San Patricio County—		
Houston, Baldwin 7 (East White Point)	500	5696
Killam, Taft 7 (East White Point)	500	5612
Plymouth, Welder 117-C (Plymouth)	*	5905
Victoria County—		
Boyle, Meyer 1 (WC), (Victoria), Shell farmout	22	4788
Greer, Haynes 1 (Victoria)	¶10	2571

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County—		
Continental, Collings 11 (Hoffman)	75	2679
Driscoll C-1 (WC), 4 mi nw of Driscoll	*	3740
Cox & Hamon, Hoffman 1 (107) (Tarancahaus)	332	2033
Hoffman 2 (107) (Tarancahua)	330	2035
Cuellar, Cuellar 11 (Hoffman)	25	2842
Duval, Hoffman 13 (Hoffman)	70	2863
Magnolia, Duval Ranch 19 (189)	38	1443
Well 6 (113) (Hoffman)	*	3072
Well 7 (113) (Hoffman)	150	2698
Reynolds & Richardson, Drummond 2-B (WC), 1 mi nw Seven Sisters	¶3½	1303
McMullen County—		
Lynd, Worley 1 (WC), 2 mi nw of Calliham	*	1000
McBride, Nueces Land 2 (WC), 1 mi n of Munson	*	1751
Putman, Claunch 1 (WC), 1 mi s of Calliham townsite	*	1321
Starr County—		
Dean, Starr County 1-A (Barbacos)	¶8	2930
Humble, McGill 44 (Kelsey)	350	4729
Moss, Owen & Bishop, Hinojosa 2 (Ricaby)	*	1645
Webb County—		
Arkansas, Adami B-2 (Adami)	51	999
Joslin, Adami 1 (WC), 1 mi w of Adami field	*	1050
Killam, Bruni 3 (9) (WC), block 77 Killam subd	*	1604
Magnolia, Volpe-Benavides 19 (Volpe)	90	2481
McClintock, Adami 3 (Adami)	51	986
Purvis, Adami 3 (Adami)	75	1004
Zapata County—		
Buffalo, Hinnant E-2 (Mirando Valley)	¶5	2070
Interstate, Lopez 29 (Mirando Valley)	83	1755
Murray & Martinez, Bruni 2 (WC), block 38	*	940
Ogden, Dodier 1 (WC), 4 mi w of Comitas	*	2274

West Central Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Brown County—		
J. C. Hamer et al, Hughes 1	*	1402
Callahan County—		
Hart & Welch, George 2, sec 2	6	638
Coleman County—		
Quinn et al, Duty 1	¶1½	1814
Eastland County—		
Rush & Godwin, Rush 1, sec 130	*	423
Jones County—		
Danciger, Roberts 7	270	1921
Fain-McGaha Oil Corp., Daughtry 9	261	1932
Iron Mt. Oil Co.-Humble, Jones-Stasney 10	2545	3230
Lewis Prod. Co., Santone Jt. Stock Ld. Band 1	60	3270
Paytex Oil Co., Sylvester 1	157	3274
Pet. Producers Co., McKeown 1	270	1875
Ungren-Frazier et al, Steffens 4	280	1911
Palo Pinto County—		
Goble-Moore Drl. Co., Costello 3-C	12	1428
T. P. Coal & Oil Co., Fee 2-X	¶5.7	2988
San Saba County (Wildcat)—		
C. D. Lane et al, J. E. McCoury 1	*	1028
Shackelford County—		
Georgian Corp., Balch 4	*	805
J. L. Hart et al, Sanders 1	¶	590
Jones et al, Smith 1	*	600
N. H. Martin & Sons, Davis 7	102	1707
Shackelford County (Wildcat)—		
Jones-Stasney et al, Wendt 1	*	3306
Stephens County—		
Hanlon Gaso. Corp., Vick 1, sec 1	*	3304
Taylor County—		
Bradford & Robertson, Bowles 1-A	110	1743
W. J. Murray et al, Evans 5	100	1755

Texas Gulf Coast

Company, Well and Location	Init. Prod. Bbls.	Depth
Boling—		
Titanic, Kellner 1	*	4328
Cheek—		
Rowan Dr. Co., Turtoris 1	*	8000
Hardin—		
Humble, Partlow A-13	198	7628
Hull—		
Mars McLean, Barrow 3	80	5507
Joe's Lake—		
Republic, Fee 30	198	7710
Lovall Lake—		
Humble, Broussard Trust 18	185	7790
Turner 1	*	7860
Magnet—		
McDannald Oil Co., Fee-Debruhl 1	102	5547
Port Neches—		
Texas Co., Khun 17	414	5930
Segno—		
Humble, Kirby Lbr. Co. B-X-20	463	8195
South Liberty—		
Noble & Baker, Welder 4	140	3598
Thompson—		
J. H. Blaffer, Davis 12-Y	450	4385
Humble, Davis 23	517	5410
H. M. Naylor, Gehr 8-B	*	7865
Turtle Bay—		
Stanolind, State 39-2	34	6638
Van Vleck—		
Skelly, Whitfield 1	*	9300
West Columbia—		
Texas Co., Hogg 92	220	3001
Withers—		
Texas Co., Pierce Estate B-46	48	5546
Ft. Bend County—		
R. N. Ranger, Sugarland Industries 1, nw of Rosenberg, J. Foster sur	*	8010

West Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Emma)—		
Sinclair Prairie, Cowden 9	1137	4246
Crane County (McCamey)—		
Cardinal Oil Co., Wooley-Shell 13	30	2132
Crockett County (World-Powell)—		
Frank Black et al, Powell 8-B	862	2615
Crockett County (Todd)—		
Stanolind et al, Todd 4-S	69	1225
Ector County (Foster)—		
Atlantic, Henderson 6	1474	4200
Stanolind, E. F. Cowden 38-B	1321	4225
J. E. Witcher 29	2060	4185
Trinity Drl. Co., Kelly-Sun 3	504	4310
Ector County (Goldsmith)—		
Cities Service, Cummins 2-F	129	4280
Philips-Pure, Cowden 68	487	4184
Cowden 69	1124	4179
Ector County (Jordan)—		
Kewanee Oil Co., University 3-B	1887	3647
Ector County (North Cowden)—		
Phillips, Midland Farm 2	924	4420
Stanolind, Roberts 26	1068	4505
Roberts 28	1863	4500
Gaines County (Seminole)—		
Amerada, Sawyer 1	372	5356
Gaines County (Wasson)—		
Amon Carter et al, Moore 3-A-46	579	5050
Continental, Langdon 3-43	480	5034
Hockley County (Slaughter)—		
Stanolind, Slaughter 5-A	761	5030
Nolan County (Wildcat)—		
Green-Owens-Metcalf & Halloran, Tipton 1	30	5175
Pecos County (Lehn)—		
W. E. Keeney et al, Lehn-Texaco 3	134	1717
Pecos County (Pecos Valley)—		
Arnold Oil Co., Potts-First Nat'l Bank 3	14	1760
Pecos County (Wildcat)—		
Trans-Pecos Oil Co., Gallagher 1	*	2240
Scurry County (Sharon)—		
Dobson-Robinson, Woodward 2	130	2502
Helmerich & Payne, Martin 1	195	2460
Pet. Producers Co., Sterling-Magnolia 1	72	2433
Upton County (McCamey)—		
Pete Williams et al, Burleson 2	*	930
Yoakum County (Wasson)—		
Aloco Oil Co., Hovencamp-Texaco 5	2042	5127
Honolulu Oil Corp., Wilder 5-804	†	4815
Magnolia, Kendrick 12	508	5120
Kendrick 6-867	605	5100
H. Mahoney 6	607	5210
Oil Dev. Co., Willard 2-763	615	5215
Willard 4-803	832	5228
Plymouth Oil Co., Bennett 1-B	914	5244
Skelly, Hancock 3	1178	5200

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Calhoun County—		
Kenny M. Hunt et al, Huffman 1	¶.78	2243
Clay County—		
Pittsburgh & W. Va. G. Co., Summers 7709	¶.07	2005
Sirk 7706	¶.03	2075
Gilmer County—		
Pittsburgh & W. Va. G. Co., Boogs 1	¶.40	1913
Glen W. Roberts, Tierney Jr. 1	*	1926
Kanawha County—		
United Fuel Gas Co., Fisher 4861	¶4.13	5052
Columbia Carbon Co., Campbells Creek Coal 4	¶.08	4840
Price 1	*	5151
Lincoln County—		
Russell Gas Co., Cooper 2	¶.70	3647
Jarrett Gas Co., Lovejoy 2	¶.13	3801
Marshall County—		
E. H. Olmstead et al, Harveston 1	¶.20	1800
Pleasants County—		
Cooper & Morrison, Myers 1	*	1955
Putnam County—		
Reishman O. & G. Co., McCallister 1	¶.36	2078
Ritchie County—		
Schultz Oil Co., Hammett 7	10	2034
Camp Oil & Gas Co., Smith 2	¶.10	1948
Roane County—		
Faith O. & G. Co., Harper et al 1	5	1716
Upshur County—		
Cumberland & Allegheny G. Co., Tolbott 294	¶.09	4063
Wayne County—		
Southern W. Va. G. & O. Corp., Pritchard 26	¶.09	3011

Wyoming

Company, Well and Location	Init. Prod. Bbls.	Depth
Carbon County (Rock Creek)—		
Ohio, Harrison-Cooper 15, nw se nw 2-19n-78w	33	3327
Carbon County (Simpson Ridge)—		
Tri-State Oil & Refining Co., Patented 16, w se nw 20-21n-80w	25	650
Sweetwater County (Lost Soldier)—		
Sinclair-Wyoming, Lost Soldier 88-A, se sw sw 11-26n-90w	72	2066
Lost Soldier 89-A, se sw sw nw 11-26n-90w	50	2085

*Failures; †Junked; ¶Million cu. ft. gas.

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CALIFORNIA
FIRST REPORT

Los Angeles County—H. H. Jenkins' No. 1, 1220 ft s 350 ft w nec 17-4-9, Olive area, lcn.

GEORGIA
FIRST REPORT

Dade County—Ky-Mo Oil Co. & Hoosier Drilling Co.'s Clarke 1, 1 mi s of Trenton on Birmingham Highway, dr 398 ft Louisville lime.

ILLINOIS
FIRST REPORTS

Clinton County—L. C. Thorpe's Merten 1, ne ne sw 28-2n-1w, loc. M. C. Trumbull's Dillman Estate 1, ne se ne 12-2n-5w, dr.

Edgar County—A. S. Mims' Landis 1, c sw se 11-12n-11w, Elbridge tnp, moving in material.

Edwards County—Noah & Morrison's Prudential Life Insurance Co. 1, se ne ne 24-2s-10e, rig.

Lawrence County—Dee Miller's J. Stewart 1, nw ne sw 30-5n-13w, moving in material.

McDonough County—R. G. Gridland's S. E. Roberts 1, se sw nw 18-6n-4w, Hire tnp, dr.

Monroe County—Ames Petroleum Co.'s Thebold 2, sw sw sw 35-1s-10w, Columbia tnp, dr.

Schuyler County—John Mackler's S. Simpson 1, nw nw nw 35-3n-1w, loc.

Shelby County—O. Baugher's Anderson 1, nw nw nw 36-12n-5e, loc.

Wabash County — D. & H. Drilling Co.'s Trapp Bros. 1, se ne se 31-1n-12w, Friendsville tnp, dr.

Wayne County—L. Alch's Dickey 1, c s½ se ne 3-1s-6e, loc.

White County—Joe Nunnecl's Kramer 1, se sw se 36-3s-8e, loc.

Williamson County—Joe Doe's O. Coleman 1, nw se se 1-10s-1e, loc. Carterville Oil Co.'s M. B. Culp 1, se se nw 2-10s-1e, loc.

COMPLETIONS

Clinton County—Norton & McWilliams' Athoff 1, c s½ ne sw 9-1n-3w, Santa Fe tnp, top Bethel 1044 ft, abnd 1071 ft.

Effingham County — P. Doran's Poehler (Tachler) 1, c nw nw se 29-6n-7e, Lucas tnp, top McClosky 2836 ft, abnd 2910 ft.

Hamilton County—Carl Robinson's Gholson 1, ne ne nw 16-7s-7e, Mayberry tnp, top Aux Vases 3053 ft, top Ste. Genevieve 3105 ft, abnd 3345 ft.

Johnson County—Tunnel Hill Oil Co.'s J. Boner 1, c w½ sw ne 30-11s-3e, Tunnel Hill tnp, top Devonian 4000 ft, abnd 4165 ft.

Lawrence County—Sam Massad's L. Busse 1, nw sw ne 23-4n-12w, Lawrence tnp, abnd loc.

Richland County—Pure Oil Co.'s M. Heap 1, c e½ sw ne 36-5n-10e, Preston tnp, top Salem 3210 ft, abnd 3456 ft.

Wabash County—Pollock's Whiteside 1, nw ne ne 11-1n-12w, Wabash tnp, top McClosky 2210 ft, abnd 2232 ft.

Washington County—Taylor Drilling Co. et al's M. Pelka 1, nw sw sw 25-3s-3w, Pilot Knob tnp, top Bethel 1304 ft, abnd 1350 ft.

Wayne County—E. E. Goad's Ahrens 1, sw se nw 36-2s-8e, Grover tnp, abnd loc.

White County—Ben Nation's M. Stokes 1, se ne se 19-4s-8e, Mill Shoals tnp, abnd loc. R. E. Johnston's Faught 1, nw se ne 26-6s-9e, Heralds Prairie tnp, abnd loc. Kingwood Oil Co.'s Bailey 1, nw sw nw 2-7s-9e, Heralds Prairie tnp, top St. Louis 3146 ft, abnd 3250 ft.

KANSAS
FIRST REPORTS

Ellis County—Hall's Smith "A" 1, c w½ nw ne 13-12-16w, dr.

Ellsworth County—Phillips Petroleum Co.'s Sturn 1, sec nw 36-17-10w, lcn.

Johnson County—Lambertson et al's Green 1, sw ne sw 25-14-22e, sd 1040 ft.

McPherson County — Aladdin Petroleum Corp.'s Bitikofer 1, c n½ ne nw 1-20-1w, pits.

Rooks County—Seaney et al's Morrison 1, csl sw ne 32-10-17w, lcn.

COMPLETIONS

Butler County—Carey & Jennings' Kelley 1, se nw sw 20-27-4e, between Bausinger and N. Augusta pools, abnd 2660 ft.

Johnson County—F. J. Kasper's Kaths 1, sec nw 33-13-22e, 5 mi n Gardner pool, top Squirrel 595 ft, td 794 ft, 500,000 cu ft gas.

KENTUCKY
FIRST REPORTS

Hancock County—Ohio Oil Co.'s George Edwards 1, Lewisburg section, dr.

Muhlenberg County — W. Hagan et al's Drake 1, Section 24-I-31, sp.

SOUTH LOUISIANA
FIRST REPORTS

Plaquemines Parish—California Co.'s Delta Minerals 1, Stella area, 3280 ft w fr w bank of Mississippi River along 15s, thence se at right angles 1650 ft being in sec 2-15s-24e, lcn.

St. Martin Parish—Wm. Helis' Martin 1, section 28 area, 1000 ft s, 100 ft w of nec 32-9s-7e, dr shale 841 ft.

COMPLETION

Avoyelles Parish — Joe Belt's Thompson-Katz Lbr. Co. 1, 466 ft fr s line and 466 ft fr w line sw se 23-2n-5e, abnd 6552 ft.

MICHIGAN
FIRST REPORT

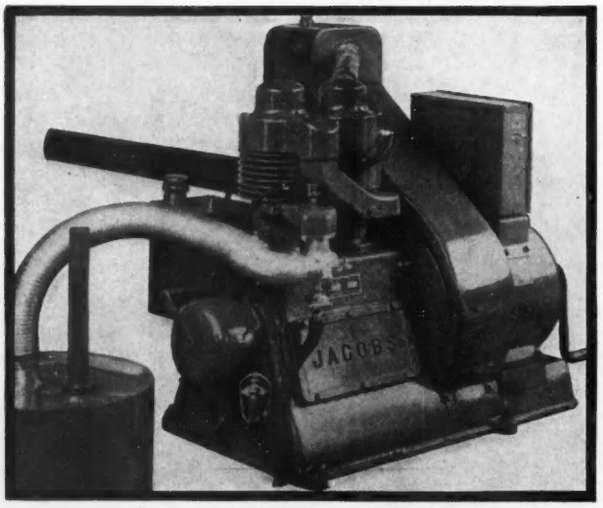
Kent County—C. J. Neal's Dotzert Hrs. 1, ne ne se 33-5n-10w, dr.

COMPLETIONS

Kalamazoo County—Fisher & McCall, Inc.'s Ballett 1, sw nw ne 32-1s-12w, Alamo Township, Traverse 1332 ft, hfw 1833 ft, abnd 1348 ft.

Mason County—C. K. Dean's Hinckley 1, c ne ne 22-17n-15w, Traverse 1956 ft, hfw 2010 ft, abnd 2020 ft.

Van Buren County—Fisher & McCall, Inc.'s Solomon 1, se se ne 9-4s-14w, Traverse 1100 ft, abnd 1107 ft.



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MISSISSIPPI

FIRST REPORT

Yazoo County—Robert P. Lake's Mrs. R. L. Exem 1, C 13-11n-2e, materials.

COMPLETION

Sharkey County—Ralph E. Fair's Frank B. Houston 1, C NE NE 12-10n-7w, ran electric log, abnd 4050 ft.

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NEW MEXICO

FIRST REPORTS

Chaves County—Farrar-Jones & Cunningham's Samples 1, se se se 1-7s-27e, machine. C. H. Cowden et al's Brunson 1, ne nw nw 27-9s-30e, cem sur pipe.

COMPLETION

Eddy County—Gene R. Burke et al's State 1, near sec sw 36-16s-24e, elev 3646 ft, top brown lime 550 ft, sul w 1400-21 ft, abnd 2450 ft.

OKLAHOMA

FIRST REPORTS

Hughes County—Phillips Petroleum Co.'s Beeker 1, ne nw sw 8-5n-10e, owpb, pb 4806 ft, perf 4600-05 ft, sd.

Kingfisher County—Phillips Petroleum Co.'s Grape 1, c nw se 30-18n-5w, rur.

Lincoln County—Travis et al's Teter 1, nwc sw 24-17n-2e, set surface pipe.

Logan County—Helmerich & Payne's McMahon 1, swc se 31-17n-1e, rur.

Seminole County—Stanolind O&G Co.'s Aldridge 1, nw ne se 32-9n-8e, pits.

COMPLETIONS

Jackson County—Harper et al's Thompson 1, sec 5-1s-21w, 10 mi sw Altus pool, top Wichita 1420 ft, abnd 3949 ft.

Kiowa County—Teggerling et al's Kimray 1, swc nw 36-5n-18w, 1½ mi nw Roosevelt, top Viola 906 ft, sg 992-96 ft, abnd 1604 ft.

Lincoln County—Harper & Turner et al's Shaeffer 1, nwc 6-16n-2e, 5 mi n Meridan pool, top first Wilcox 4996 ft, top Marshall zone 5045 ft, abnd 5146½ ft.

Osage County—Peters Oil Co. et al's Osage 3, s½ nw nw ne 4-23n-10e, 1 mi s Bird Creek pool, top Arbuckle 2469 ft, td 2558 ft, pb and perf Bartlesville 2125 ft, 17 million gas.

Seminole County—Wood Oil Co. et al's Crow 1, sec 31-8n-6e, nw Little River pool, top first Wilcox 4603 ft, abnd 4622½ ft.

EAST TEXAS

FIRST REPORT

Nacogdoches County—Melrose Oil Co.'s C. N. Wilson 1, 250 ft from s and 1530 ft from e lines J. Hall sur 265, 10 mi se Nacogdoches, sp and sd.

TEXAS GULF COAST

FIRST REPORTS

Jefferson County—Fidelity Oil & Refining Co.'s Craigen 1, se of Hampshire, 445 ft fr n line and 490 ft fr w line of s 320-acre tract in T&NO No. 146, lcn.

Wharton County—H. C. Cockburn's Reitz 1, s of El Campo, 330 ft out of the nec of sur, lcn. S. G. Harrison's Carlson 1, s of The Texas Company's Peters 1, Hilje area, 466 ft out of swc of ne¼ of Morris & Cummings sur, lcn.

COMPLETION

Ft. Bend County—R. N. Ranger's Sugarland Industries 1, nw of Rosenberg, 990 ft fr s and 443 ft fr w line of lease, J. Foster sur, abnd 8010 ft.

WEST CENTRAL TEXAS

FIRST REPORTS

Callahan County—Green-Owens & J. T. Watts' M. Murray 1, 156 ft from n and 1530 ft from w lines of north 117.6 acres of e½ Jacob Trask sur 761, sp. Reeves & Campbell's N. A. Estes 1, 1170 ft from s and 150 ft from w sec 4, S. P. Ry. sur, blk 8, lcn.

Coleman County—Joe A. Worsham et al's C. C. Williams 1, ne ne sw T&NO sec 18, blk 2, elev 2000 ft, lcn.

Eastland County—W. J. Dobbs Oil Corp.'s R. L. Poe 1, c se¼ H&TC sec 37, blk 3, mim for 3000-ft test.

COMPLETIONS

San Saba County—Clyde D. Lane et al's J. E. McCoury 1, 1075 ft from s and 7594 ft from w lines A. Dietz sur 45, top Ellenberger 615 ft, abnd 1028 ft.

Shackelford County—Jones-Stasney-Groover & Rose's W. Wendt 1, 440 ft out of nwc H&TC sec 13, blk 3, show oil in Palo Pinto 3280-82 ft, abnd in water 3282-3306 ft.

SOUTH TEXAS

FIRST REPORTS

Starr County—Royal Oil & Gas Company's Enemario Juarez 1, 466 ft n line and 466 ft e line, Block 9, McBride subdivision of 5100-acre tract, share B&C Santa Teresa Gr, 7250 ft n line and 466 ft e line of gr, 6200 ft w and s of Kelsey Pool, preparing to spud.

Victoria County—Colton and Colton's Etta B. Terrell 1, 330 ft se line and 330 ft sw line of 125 acres of the John B. Sideck sur, 2625 ft from ne line and 940 ft from se line of sur and 2½ mi s of No. 1 Buckholtz, loc.

Webb County—Interstate Minerals, Inc.'s R. Lopez 1, c of blk 4, sur 309, loc.

Zapata County—Ralph R. Ogden's Volpe 1, 7215.5 ft s line and 4325 ft e line El Socorro gr, 14 mi e of Zapata and 4 mi w of Comitas field, loc cleared.

COMPLETIONS

Duval County—Continental Oil Co.'s Driscoll C-1, 2310 ft s line and 330 ft e line, sec 61, Santa Rosalia gr, 4 mi northwest of Driscoll field, abnd 3740 ft, tested water through perforations 2620-26 ft with 24 shots. Reynolds and Richardson's Dummond 2-B, 1 mi nw of Seven Sisters field, estimated 3½ million cubic ft of dry gas, ¾-in choke, 270 pounds flowing pressure, 230 pounds closed in pressure, perforated 1233-44 ft with 11 shots.

Gonzales County—H. F. Sears and J. L. Dixon's Martindale Mortgage 1, 3 mi ne of Slaton, abnd 318 ft.

Guadalupe County—Wellington Oil Co. of Delaware, Rio Bravo 1, 6 mi se of Zoboraski field, abnd 3787 ft.

McMullen County—J. H. Lynd's Worley 1, 2 mi nw of Calliham, abnd 1000 ft. W. C. McBride, Inc.'s Nueces Land 2, 1 mi n of Munson field, abnd 1751 ft. Roger Putman's Claunch 1, 1 mi s of Calliham, abnd 1321 ft.

Travis County—J. H. Gray's Stark Washington 1, 10 mi e of Austin, abnd 1703 ft in Edwards lime.

Victoria County—W. Stewart Boyle's Meyer 1, Victoria area, Shell farmout, pumped 22 barrels per day, 27 gravity oil, perforated 4776-79 ft.

Webb County—Amsco Production Co.'s Vasquez 1, 6 mi nw of Bruni, loc abnd. E. S. Joslin's Adami 1, 1 mi w of Adami field, abnd 1050 ft. O. W. Killam's Bruni 3 (9), blk 77, Killam subd, abnd 1604 ft.

Zapata County—Ralph R. Ogden's Dodier 1, 4 mi w of Comitas field, junked 2274 ft, skidded 50 ft ne for new test.

San Patricio County—Southern Minerals Corp.'s Sparks 1, 9 mi n of Edroy or 6 mi ne of East Mathis field, St. Paul area, abnd 6015 ft.

NORTH TEXAS

FIRST REPORTS

Archer County—C. B. Christie et al's H. H. Taylor 1, 330 ft from s and 3358 ft from w lines Harvey Cox sur A-67, nec county, mim for 5100-ft test. Petroleum Producers Co.'s D. L. Wolf 1, 330 ft out of nwc sec 2, J. Poitevent sur A-1228, 8 mi w by n Anarene, 5200-ft test, dr 550 ft.

Clay County—White & Austin's J. B. Hansard 1, 1200 ft from n and 350 ft from w lines blk 47, Specht & McCutchen sur, 1 mi w Thornberry, dr 250 ft. L. T. Burns et al's E. Henderson 1, 330 ft out of swc e½ TE&L Co. sec 2615 mim for 3600-ft test; J. G. Mullens 1, 330 ft out of sec north 160 acres TE&L Co. sec 2617, mim for 3600-ft test.

Jack County—Harper Pet. Corp.'s J. W. Kinder 1, 1425 ft from w and 1355 ft from s lines TE&L Co. sec 2667, elev 1101 ft, 2300-ft core test.

COMPLETIONS

Clay County—Ted Norwood et al's Taylor 1, 150 ft from se and ne lines blk 39, Bacon subdiv, trace oil 1113-17 ft, abnd 1300 ft.

Cooke County—Big Indian Oil & Dev. Co.'s M. P. Morton 1, 1040 ft from n and 1185 ft from m/w/w lines E. T. Ry. sec 1, abnd 2517 ft. Chas. E. Lynch et al's Heilman 1, 150 ft from s and 2200 ft from w lines T. Toby sur A-1060, abnd 1203 ft. Peter J. Sarron et al's Pete Strong 1, 150 ft from ne and 150 ft from sw line of m/e sec S. P. Ry. sur A-975, top Ellenberger 1995 ft, abnd 2007 ft.

WEST TEXAS

FIRST REPORTS

Hockley County—Denver Producing & Refining Co.-Helmerich & Payne, Inc.'s I. P. DeLoache (White Face Farm) 1, sec labor 22, league 77, Reeves C.S.L. sur, lcn.

Pecos County—Claude Garrett et al's J. R. Bennett 1, 990 ft from n and 660 ft from w lines GC&SF sec 592, A-5262, lcn.

Swisher County—Krupp-Flaherty Oil Co.'s H. Kleen 1, c sw¼ sec 120, blk M-10, AB&M sur, lcn.

COMPLETIONS

Crockett County—Stanolind O&G Co. et al's J. S. Todd 4, 1320 ft from s and 1980 ft from m/w/w line GC&SF sec 30, blk WX, elev 2487 ft, oil pay 1219-25 ft, flowed 69 bbls 21-gravity oil and 876,300 ft natural gas via ½-in choke.

Nolan County—Green-Owens-Metcalf & Halloran's C. H. Tipton 1, near se nw sw T&P sec 43, blk 19, elev 1975 ft, top Noodle Creek lime 2775 ft, top Swastika 3590 ft, Adams Branch 4083-4150 ft, top Palo Pinto 4858 ft, pay 5138-75 ft, pb to 5171 ft, pumped 30 barrels oil and 9 bbls water initial after squib shots.

Pecos County—Trans-Pecos Oil Co.'s F. M. Gallagher 1, ne ne nw T&P sec 9, blk 51, tsp 10, elev 3207 ft, temporarily abnd 2240 ft.

Angleton allowed 200 barrels

The Texas Railroad Commission has set a temporary allowable of 200 barrels per well for wells in the Angleton field, Brazoria County. The new order was issued on January 25. The field is similar to Old Ocean, and the higher allowable was requested by Glenn McCarthy, operator in the field.

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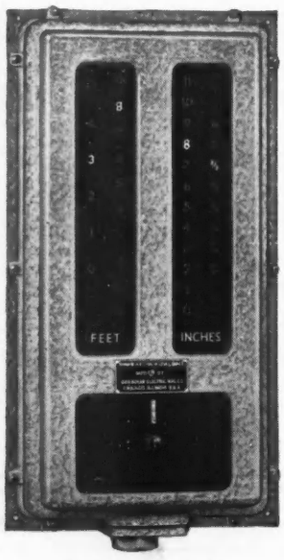
EXECUTIVE OFFICES: DALLAS, TEXAS

NOTES FOR THE Equipment Buyer and User

Remote Liquid Gauge

GUARDIAN ELECTRIC MANUFACTURING COMPANY

Guardian Electric Manufacturing Company, 1621 West Walnut Street, Chicago, has an electric liquid-level gauge for recording the amount of oil or other liquids in steel storage. It

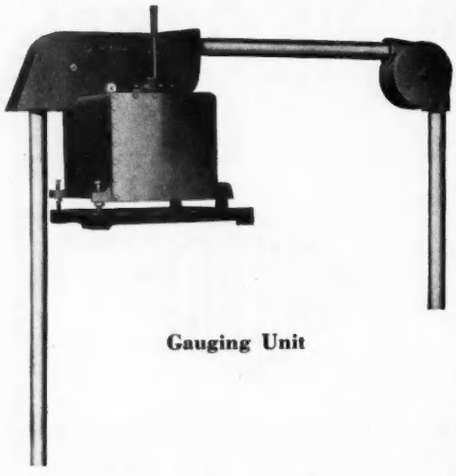


Indicator Panel

consists of a tank head gauging unit for each tank and an indicator panel, which will serve for all tanks in a battery. The mechanism is not affected by temperature, weather, variation in specific gravity or distance between tanks and control office. Failure of current does not affect accuracy since power is used only when tanks are being gauged.

The tank head gauging unit consists of a mechanism sealed in oil. The head is of cast aluminum and the gears are bronze. The float and bridle assembly is designed to pass through standard manholes. The float displaces 1-16 inch of liquid and operates a control mechanism on as little as 4 ounces pull. By gland sealing the tape exit and closely fitting the aluminum pipe at the tank head housing, gauge may be used on all types of sealed tanks without loss of vapor.

The indicator panel can be connected to 24 tanks on the standard model or a larger number can be proved as desired. Each tank is gauged by turning a dial to the number of the tank. Then by pushing a button the exact depth shows in lights on the indicator panel. Feet are shown in red numerals and inches and fractions in green. The panel is gasket sealed and vapor proof.



Gauging Unit

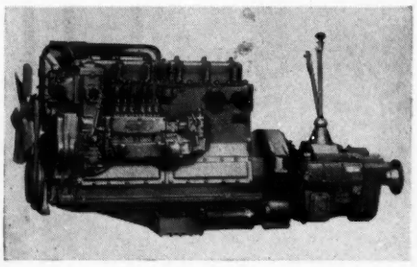
Diesel Truck Engine

CATERPILLAR TRACTOR COMPANY

Caterpillar Tractor Company, Peoria, Illinois, has announced its entry into the automotive field, with a 90-horsepower Diesel truck engine.

For replacement installations, "Caterpillar's" Model D468 engine is offered as a complete unit, equipped with a five-speed Spicer No. 5351 transmission, and clutch.

The engine is a six-cylinder four-stroke, valve-in-head, water-cooled model with a bore of 4¼ inches and a



Caterpillar Diesel Truck Engine

5½-inch stroke. Maximum horsepower is developed at 1800 r.p.m. Maximum torque is 305 pounds-feet at 900 r.p.m. Piston displacement is 468 cubic inches.

The engine fuel system features solid injection into precombustion chambers. All injection pumps and valves are set at the factory and require no adjustment in the field.

Pistons are of aluminum alloy. The cylinder head, the block and the crankcase unit are in cast alloy iron. Water circulation is by pump, with the operating temperature of the water controlled by thermostat. There is an air-cooled type lubricating oil cooler provided.

There are seven main crankshaft bearings, with a total surface of 118 square inches. Connecting rod bearings are of 2⅝-inch diameter and are 1⅞-inch in length. There is a crankshaft torsional vibration damper.

Lubrication is by pressure to all main and connecting rod bearings, piston pin bearings, camshaft bearings, valve operating mechanism and timing gears.

Power Cut-Out Switch

INTERNATIONAL DERRICK & EQUIPMENT DIVISION

International Derrick & Equipment Division of International-Stacey Corporation, Columbus, Ohio, recently introduced the Ideco Sentinel Power Cut-Out Switch as a reliable means of protecting pumping equipment from damage after rod strings break.

The switch consists of a pivoted arm which is held in the operating position by means of a permanent magnet. When the force on the arm exceeds the force of attraction in the magnet, the arm drops by gravity and a mercury switch grounds the magneto in an internal combustion engine or de-energizes the magneto switch of an electric motor. When the arm drops it is held in the disengaged position by gravity.

One of the most valuable features of the switch is the provision for adjusting its sensitivity. This adjustment is accomplished by moving a weight along the lever arm. A delicate adjustment is used for deep wells in which the reaction from a rod break is slight.

The switch may be installed on any type of pumping rig without the necessity of special field fabrication. It is

"Speed Crank" on No. 440 Simplex Pull Rod Jack Takes Up the Slack!

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GOLD MEDAL AWARD SAFETY JACKS

Repair Pull Rod breaks the fast, simple way—with the heavy duty 7-ton No. 440 Simplex Worm Gear Pull Rod Jack.

Quickly takes up rod line slack without kinking. Improved one-piece slips go on and off faster, hold tight; no kick-backs. Ample space for heading up "turtle-back." Easily installed. One man and the No. 440 can easily pull deepest central power wells.

Stocked by your field store.

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Chicago, Illinois

TOUGH JOB AHEAD

Tool joints that can't take it and economical drilling don't speak the same language. And, vice versa, joints that stand up and give trouble-free service go a long way toward holding down drilling costs. The experience of drillers who are using tool joints made of Chrome-Moly (SAE 4140) steel proves that.

This steel has the strength needed to stand the twists and stresses and the hardness to resist abrasion and erosion. It produces tool joints that can be made up tight and broken out fast without premature failure.

And, because the steel is strong, Chrome-Moly joints need not be thick walled. In other words, they can have bores large enough to permit free fluid flow.

From crown block to bit, Molybdenum steels are making records for drilling speed and economy. These steels and their applications are described in our book, "Molybdenum Steels in Oil Production", which will be sent free on request.

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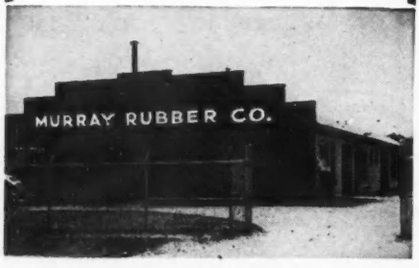

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The above are but a few of our thread measuring instruments. For your convenience our engineering department will cooperate with you on any new instrument you may require.

General Engineering & Model Works
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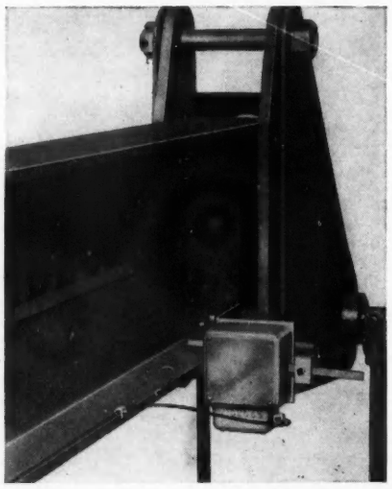


Ideco Sentinel Power Cut-Out Switch

equipped with means for clamping to the flange of a steel beam or bolting to a wood beam. The ordinary lease man can install it without difficulty. The installation consists simply of attaching the switch to the walking beam and connecting the lead wire to the magneto or the magnetic switch.

Drill Collar Clamp for Flush Pipe

POIST TOOL COMPANY

Poist Tool Company, 2750 Cherry Avenue, Long Beach, California, has introduced a drill collar clamp called Griplok, particularly for flush pipe. It provides an unyielding grip on the pipe collar or liner. It is applied to the pipe

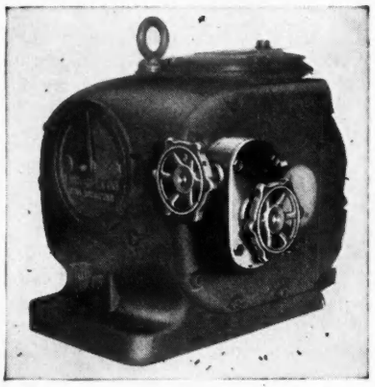
Poist Griplok Drill Collar Clamp

before breaking out the joint. Griplok is an adjustable clamp consisting of four steel segments held together by three tapered pins, and locked with a tie-bolt. It is self-adjusting and is equipped with interchangeable slips which fit all sizes of pipe. It can be locked on in 30 seconds. A convenient tie-bolt cinches the inserted slips, with stress evenly distributed throughout the pipe's periphery. The three long tapered pins serve a useful purpose. If the pipe falls, due to dull or worn slips, or from any other cause, the pins, striking the table slips, tighten the device. At the same time they help to absorb the shock of the drop and also tighten the cinch of Griplok around the pipe. This device is placed a few inches above the rotary table slips.

Vernier-Control Variable Speed Transmission

LINK-BELT COMPANY

Announcement is made by Link-Belt Company, Philadelphia, that it is now in position to equip all sizes of the Link-Belt P.I.V. Gear variable speed transmission with vernier control, for



Link-Belt Variable Speed Transmission

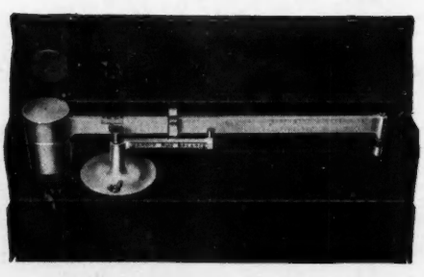
installations where extremely fine control of speed changes is required.

This vernier control can be supplied with either one of two ratios—7½ to 1 or 30 to 1, and is equipped with two hand wheels. One is for direct control; the secondary, or vernier type control hand wheel will provide either 30 turns or 7½ turns to one of the direct wheel, depending upon which ratio of worm-gear reduction set is furnished.

Carrying Case for Baroid Mud Balance

A two-purpose metal case has been designed for carrying the Baroid Mud Balance and also to act as a protection against wind and rain when determining the density of drilling fluids with the balance. An especially designed catch holds the cover straight up and prevents winds from distributing the natural oscillation of the sensitive balance during a test.

When not in use the upper section of the balance is removed from the base and clamped securely into place. The



Baroid Mud Balance Case

NOTES FOR THE Equipment Buyer and User

base is attached to the case in working position by thumb screws. Inasmuch as the Baroid Mud Balance is alumilited, the case has been finished in dark green to provide a suitable neutral background and thereby make it easier to read the calibrations on the balance arm.

These cases are available with or without the mud balance, from Baroid Sales Department offices at Los Angeles, Houston, or Tulsa.

Earle M. Jorgensen Company Expanding Houston Warehouse

Earle M. Jorgenson Company shortly will begin construction of additional warehouse space at its plant at 5311 Clinton Drive, Houston, according to E. V. Brown, Houston manager.

The program includes razing an office building and erection of a one-story brick with stone trim, air conditioned office building, 60 by 35 feet, and a 45 by 35-foot extension of the warehouse. The company's Houston facilities are located on a 3-acre site.

Hamilton Directs Sales of Mid-Continent Pump Supply

T. J. "Tom" Hamilton, for 19 years with Phillips Petroleum Company, has been made sales manager for Mid-Continent Pump Supply Corporation of Tulsa. Hamilton and Roy Dunbar, president of the company have just returned from a trip to the California plant of Pacific Pump Works whose products will be distributed under Hamilton's direction.

Hamilton, who has specialized in mechanical and producing equipment

T. J. HAMILTON

in the oil fields, has been district superintendent of production for Phillips Petroleum Company at Oklahoma City and other points for 10 years. He is vice chairman of the Mid-Continent Division of the producing department of the American Petroleum Institute and former president of the Kansas state chapter. He is a member of the A.I.M.M.E. Hamilton graduated from Ohio State University in 1914 and after spending two years at Columbus College entered the oil business. During his shool years he worked for Carter Oil Company in Ohio and Illinois, and started as a roustabout for Phillips Petroleum Company in 1920.

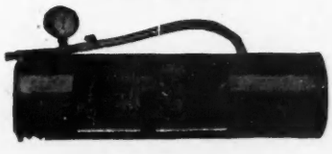
Rector Well Equipment Company Announces Coating Service Unit

Rector Well Equipment Company, Fort Worth, Texas, has put into operation a service unit for application of "Rectorkote," material for combatting corrosion of tanks and inside of tubing and pipe to prevent the accumulation of paraffin deposits.

The unit consists of a gas engine-driven compressor, capable of furnishing 60 cubic feet of air per minute at 100 pounds pressure. This amount of air is sufficient to supply two of the special spray guns used in the work, as well as the air line gas masks of the operators when coating the inside of tanks, and also the air used in blowing out tubing during the cleaning operation. A-1 KW gas engine-driven generator, mounted alongside the compressor, furnishes necessary lights, and also powers the special motor-driven brushes used to clean the inside of tubing and line pipe.

With this unit, the coating work, whether on tanks or tubing, can be

STOPPERS FOR OIL LINES



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Vapor Control Equipment!
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for
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MORE HOLE PER BIT
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The harder the service, the tighter they hold
Get them from your supply house... Factory stocks in Houston and Los Angeles
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No. 3480...100 c.c. machine. Cranks and heads interchangeable with 15 c.c. machines.

You can maintain your required speed for the period of the test with much less effort. Curtin Centrifuges, proven world-wide, are heavy duty, rigidly constructed, and extremely simple in design. Illustrated bulletin, giving full details, available upon request.

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HOUSTON U·S·A TEXAS

NOTES FOR THE Equipment Buyer and User

Rector Well Equipment Company's Service Unit

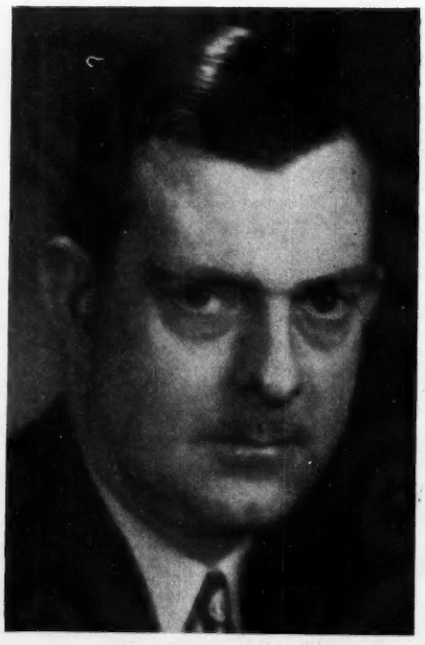
done in a minimum amount of time, and at low cost, with the assurance that failure will not result from misapplication. The unit will be in charge of M. T. Harrell, formerly in charge of physical testing at the Houston plant.

D. L. Davis Joins Hercules Supply Company at Fort Worth

D. L. Davis has joined Hercules Supply Company, Fort Worth, Texas, effective January 16, as assistant to the president and credit manager. He has been identified with the oil field supply business since 1925, starting with Jarecki Manufacturing Company at August, Kansas, and for the past 8 years has been associated with General Machine & Tool Company, Wichita, Kansas, serving the latter in the capacity of assistant to the general manager.

Hercules Issues New Booklet On Heavy-Duty Diesel Engines

A concise yet comprehensive explanation of modern high-speed, heavy-duty Diesel engines is covered in a new booklet just issued by Hercules Motors Corporation of Canton, Ohio. Handled in question and answer form, some very interesting comparisons are presented between Diesel engines and gasoline engines; also between the two-cycle and four-cycle types of Diesel engines. The complete line of Hercules two-cylinder, four-cylinder and six-cylinder engines is shown, including the Hercules Complete "Power Package" Replacement Diesel for Ford trucks for the years 1935 to 1940, inclusive.



Henry J. McAdams, above, has become associated with the sales staff of the New York district sales office of Jones & Laughlin Steel Corporation, to specialize in the sale of oil country tubular goods. He has been New York manager of Tokheim Oil Tank & Pump Company since 1934.

Standco
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STANDCO BRAKE LINING
nothing novel—no bunk—but it gets the job done without scoring brake rims. See page 2100 Composite Catalog.
Standco Brake Lining Co.
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X (XL) "ALL-THRED" PROTECTOR PATENT PENDING
No.1 PROTECTS STARTING THREAD
No.2 THREAD CLEARANCE WITH SUFFICIENT SPACE FOR GREASE IN WATER PROOFING
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3-Point PROTECTION
AGAINST DAMAGED THREADS
The next time you order pipe, be sure the threads are properly protected while in transit . . . specify X-L "All-Thred" Thread Protectors. Leading operators everywhere prefer them because of their scientific construction . . . Write factory at Wheeling for your complete FREE Catalog.
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WHEELING MACHINE PRODUCTS COMPANY
WHEELING WEST VIRGINIA

Dill Representing Jensen Brothers in Export Sales

New export offices in charge of A. A. Dill have been established by Jensen Brothers Manufacturing Company at 1850 Hudson Terminal Building, 50

A. A. DILL
Newly Appointed Export Representative for Jenson Brothers Manufacturing Company.

Church Street, New York. The cable address is "Axelson." Dill will look after the sale of Jensen pumping units and rod line jacks in foreign fields.

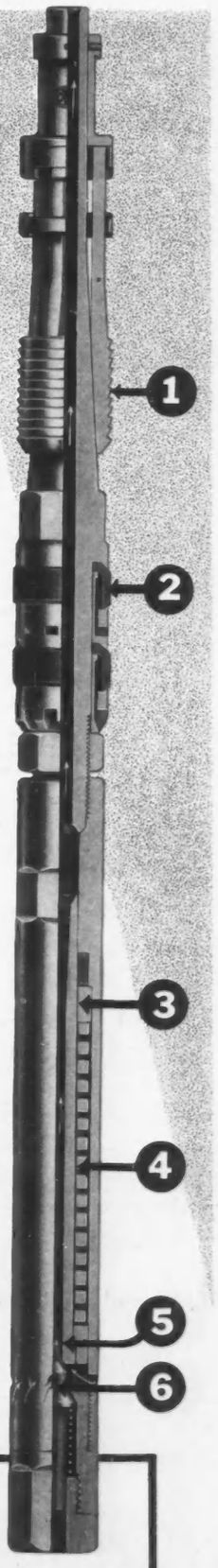
Technical Oil Tool Corporation Opening Houston Headquarters

James V. Robinson, sales manager of Technical Oil Tool Corporation, Los Angeles, is now in Houston, where he is engaged in enlarging the company's direct-factory representative and service organization. The plan being just put into operation by Robinson will result in zone headquarters being established at a centrally located point in each active drilling area. Totco recorders for controlled vertical drilling will

JAMES V. ROBINSON

Last Year's Infant Prodigy Steals the Spot-Light Again!

NEW TYPE VALVE



PERMITS PUMPING THROUGH OTIS REMOVABLE BOTTOM HOLE REGULATOR . . . .

One of the most popular new tools made available to the oil industry last year was the Otis Removable Bottom Hole Regulator. In five short months it was a "must" in more than 40 producing fields. It is in such high favor because it adds surface-controlled rate of production to the advantages of bottom hole choking; it reduces highest tubing flowing pressures to safe workable limits and it *positively eliminates freezing* of surface controls, doing away with costly heating plants.

And *now* — there is another advantage to using the Otis Removable Bottom Hole Regulator. The new type valve enables you to pump *down* through it if it becomes necessary to kill the well while the Regulator is in the tubing. In the usual operation, a movable valve seat is urged against a valve by a heavy coiled expanding spring. Well pressure against the movable valve seat, less the area of the valve, raises the valve seat to permit flow up through the orifice in the valve seat. To allow reverse direction of flow, the valve moves down, instead of the valve seat moving up.

WRITE OR CALL TODAY. Look in the yellow pages of your telephone directory under "Oil Field Service" for nearest Otis representative.

1. Slips
2. Sealing Cups
3. Adjusting Ring
4. Expanding Spring
5. Movable Valve Seat
6. Valve

OTIS "Don't Kill Your Well" Call OTIS

OTIS PRESSURE CONTROL, INC.
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HOSE C—4" SIZE
In Service 29 Months
112,500 ft. of hole drilled
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of hole drilled.
*Total Hose Cost includes purchase price and upkeep.

PERFORMANCE COUNTS

CHIKSAN *All-Steel* Rotary Hose is the most economical hose you can buy . . . Light in weight. Compare with other hose of the same size!

BUY THE HOSE THAT FITS YOUR PUMPS

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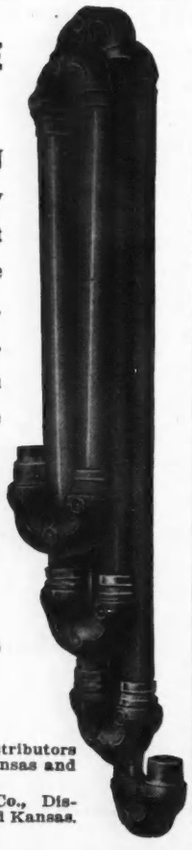
45'–50'–55'–60'
Lengths



Gulf Engineers, Inc., Distributors in Texas, Louisiana, Arkansas and New Mexico.

Well Equipment Mfg. Co., Distributors in Oklahoma and Kansas.

CHIKSAN BALL BEARING SWING JOINTS

CHIKSAN TOOL COMPANY
BREA, CALIFORNIA

BALL BEARING SWING JOINTS for ALL PURPOSES
ALL-STEEL ROTARY HOSE
CIRCULATING HEADS • MUD GUNS
THREE-WAY DISC BIT
STANDARD AND HEAVY DUTY REAMERS

NOTES FOR THE Equipment Buyer and User

be delivered to jobs from the zone headquarters, and any necessary service will be rendered by a factory-trained representative who has made a special study of conditions and drilling practices in his particular area. It is believed that this system will enable the organization to render faster service and closer cooperation with drilling contractors and producers in the Mid-Continent, Gulf Coast, and Louisiana areas. Robinson will be in Houston until the last of February.

Security Engineering Sales Manager Touring South America

E. W. "Al" Forrow, general sales manager, Security Engineering Company, Whittier, California, left January 26 on a two-months' tour of Venezuela, Colombia and Trinidad. He is accompanied by Mrs. Forrow and will be joined in Trinidad by W. C. Langley, the company's representative for that area.

Lane-Wells Company Expanding Services in Mid-Continent Fields

Rodney S. Durkee, president, and M. E. Montrose, general sales manager of Lane-Wells Company, are visiting the Mid-Continent branches of the company between January 21 and 31. Activity of the company's gun perforator and electrolog services as developed in these fields during the past year indicates a need for more field units and field crews in this area, according to Durkee. The Los Angeles plant will be operating at capacity during the coming year to complete the field truck units required.

The general officers and division executives of Lane-Wells Company met in Los Angeles January 8 to 12 for an annual general sales meeting.

According to Durkee, company operations for 1940 will include an aggressive sales campaign as well as the construction of new field units for gun perforating and electrolog needed for the expansion of these services in all fields.

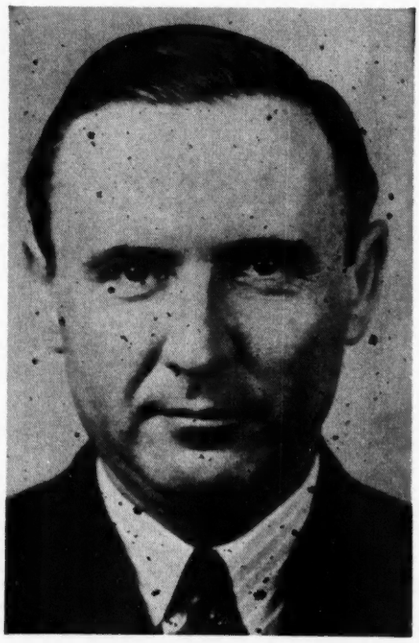
Representing the Gulf Coast division at the meeting were Morton T. Higgs and J. D. Hughes, division manager and sales manager, respectively, at Houston.

R. B. McCullar, division manager, and Charles T. Casebeer, represent the Mid-Continent division. Manager J. W. McPhee and Sales Manager D. M. Anderson represented the California division.

Rubber Goods

A new edition of The Continental Supply Company's catalog of mechanical rubber goods for use in the oil industry is now being distributed to its customers throughout the oil country.

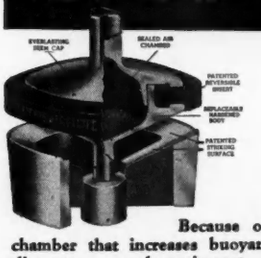
The 56-page catalog includes a special section devoted to the company's line of rotary hose with new built-in, leak-proof couplings. In addition, it lists and illustrates Continental's wide variety of belting, hose, and packings.



E. W. FORROW
Security Engineering Company sales manager, making foreign tour.

For Month In-Month Out Service

USE MacCLATCHIE "AIRFLOTE" MUD PUMP VALVES



Because of the sealed-in air chamber that increases buoyancy . . . cuts fluid slippage . . . reduces impact . . . and gives more efficient valve action, MacClatchie "Airflote" Pump Valves insure superior performance and longer life under the toughest pumping conditions. Replaceable bodies, reversible inserts and everlasting stem caps give true MacClatchie economy.

MacClatchie "Streamlined" Pump Valves give you *high* quality at *lowest* cost! Of solid one-piece construction, they're streamlined at every point to assure unobstructed fluid flow. Valve Seats (interchangeable with "Airflotes") have 20% to 100% *more* striking surface than others, PLUS patented cross-bar construction.

All MacClatchie Valves are guaranteed against cutting out the pump. *See our representative or write direct to factory for details on this guarantee.*

MacCLATCHIE MANUFACTURING CO.
COMPTON, CALIFORNIA
Mid-Continent Distributor, HAKE TOOL COMPANY, Houston, Texas
Rocky Mountain Representative, E. C. DILGARD, Casper, Wyoming
Foreign, GEORGE R. WOODS, 17 Battery Place, New York, N. Y.

MERLA

NEW! Improved Insert Pump Anchor...

The *new* Merla Improved Insert Pump Anchor saves money and time when a well is put on the pump. Why?

Anchor can be set at any convenient point.

No tubing removal—Use only gin pole.

Pump can be set at any depth in the fluid.

Improved features include — fluid area twice that of the previous model . . . controlled sleeve expansion . . . anchor locked in position . . . heavier hook wall assembly with improved friction springs.

Price list available upon application.

INSERT PUMP ANCHORS
PACKERS — FLOW VALVES
SWABS

See Pages 1642-1643 Composite Catalog.

MERLA TOOL CORPORATION
Manufacturers of Oil Field Equipment
P. O. Box 2576 Dallas, Texas

Oil Field Engineering Sales Co.
710 Garfield Alhambra, Calif.

Service in all Principal Mid-Continent Oil Fields

Fohs Oil Company

Esperson Building

Houston, Texas

Producer of Sweet Crudes

Development of New Fields

Louisiana, Texas and Arkansas

THE FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA
1st
FOUNDED 1895

In Tulsa

STATEMENT OF CONDITION

December 30, 1939

RESOURCES

Cash and Due from Banks	$26,159,729.48
U. S. Government Securities	9,724,593.83
Municipal Securities	2,582,576.34
Industrial Securities	257,379.44
Loans and Discounts	20,369,809.69
Overdrafts	393.58
Other Real Estate	1.00
Federal Reserve Bank Stock	120,000.00
Income Earned not Collected	90,834.56
Bank Premises and Fixtures	1,255,694.61
TOTAL	$60,561,012.53

LIABILITIES

Deposits		$55,228,223.46
Income Collected not Earned		102,228.08
Taxes, Interest, and Expense—Accrued		81,889.50
Capital—Common	$2,000,000.00	
Surplus	2,000,000.00	
Undivided Profits	742,912.07	
Reserved for Contingencies	405,759.42	5,148,671.49
TOTAL		$60,561,012.53

The FIRST NATIONAL BANK and TRUST COMPANY of TULSA

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Clean Out TOUGH WELLS

WITH A

MILLER

Sand and sediment in your wells make them poor producers—clean-out with a MILLER Sand Pump and *get all YOUR oil!*

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type. ¼-inch wall tubes HEAVY Type Sand Pumps.

INTERCHANGEABLE BOTTOMS

To Meet Every Condition

● BAILER BOTTOM

With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

● SAND BOTTOM

Used when tools are run and when well is shot to quickly remove loose material.

● STAR BOTTOM

Used for cutting the sand loose.

● CHISEL BOTTOM

(In Pump)

With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Pages 1672-73 COMPOSITE CATALOG

MILLER

Sand Pump Co.

General Offices and Factory:

OKLAHOMA CITY, OKLAHOMA

1524 S.E. 29th P.O. Box 4516 Tel. 7-6884

Branches:

SAPULPA Okla. Tel: 341

KILGORE Texas Tel: 545

HOUSTON Texas Tel: P-2941

FOR SALE BY SUPPLY STORES EVERYWHERE

Squeaks from the Bull Wheel

Finest Hymn

A traffic policeman at a busy corner saw an old lady beckon to him one afternoon. He held up a dozen motor cars, a truck, and two cabs to get to her side.

"What is it ma'am?" he said rather impatiently.

The old lady smiled and put her hand on his arm.

"Officer," she said, in a soft voice, "I want to tell you that the number you have is the number of my favorite hymn."

Boy's Idea

"Do teachers get paid?"

"Of course they do."

"Then it ain't fair. Why should teachers get paid when we do all the work?"

Wishing

"I wish I had enough money to buy an elephant."

"Why d'you want an elephant?"

"I don't; I want the money."

Not Too Raw

Sir, I have something exceedingly rare in the way of books.

Thanks; when it comes to a book, I prefer one that's well done.

Always Something

"Well, old man," Simpson said to his friend who had just inherited a fortune, "I reckon I ought to offer my congratulations, eh?"

"Oh, I don't know," the newly-rich sighed. "I suppose wealth has its points, but it's sure to rob me of one thrill, at least."

"What do you mean?"

"Well, I'll never again experience the thrill of paying off the last instalment on something."

Consistent

I must find another tailor. This one reads too much.

Reads too much?

Yes. Every letter he writes to me begins, "On going through my books."

Young Webster

What is a creditor?

A man who is told that my father is not at home.

Enough Is Enough

After about ten minutes of play, one eleven made a touchdown and the same team kicked off again, whereupon one lady tapped the other on the shoulder and said, "Let's go. This is where we came in."

Educational Films

"Movies are educational."

"Yes; I took my wife to one, and she learned that she needed three new dresses."

Big Ones on Top

Onto the parade ground marched the colonel. He gave a look at the paraded men, rubbed his monocle, and had another look.

"Hang it all," he barked at the captain, "what's the idea of parading all the big men in front of the smaller men?"

"Sorry, sir," explained the captain. "It seems that the sergeant had a fruit stand up to a few months ago."

Tact

The shoe store proprietor was hiring a clerk. "Suppose," he said, "a lady customer were to remark, while you were trying to fit her, 'Don't you think one of my feet is bigger than the other?' what would you say?"

"I should say, 'On the contrary, madam, one is smaller than the other.'"

"The job is yours."

Patience Will Win

"Patience and perseverance will accomplish all things."

"Will patience and perseverance enable you to carry water in a sieve?"

"Certainly."

"I would like to know how."

"By waiting patiently for the water to freeze."

That Man's In Again

"Have you noticed that people, especially business men, are looking much more cheerful lately?"

"Yes; circumstances alter faces, you know."

Beautiful Chimes

"Aren't those chimes melodiously beautiful? Such harmony. So enchanting."

"You'll have to speak louder. Those confounded bells are making such a racket I can't hear you."

Playing Safe

The jury having acquitted you of the charge of bigamy, you are free to leave the court and go home.

Thank you, your honor, but I want to be on the safe side—which home?

First Lessons in Arithmetic

"If there were four flies on the desk, Mary, and I killed one, how many would be left?"

"One—the dead one."

Hospitality

Miss Millie Browne, the prettiest girl in the village, was blessed with a father who snubbed all young men who came to see her.

One evening Charles Newton, a bashful young man, called. Mr. Browne and old Mr. Newton were close friends, but the old man did not recognize the visitor.

"It looks as if it might rain," the young fellow ventured.

"'Tain't goin' to rain," was the gruff response.

For about a quarter of an hour they sat in silence. Finally, the old man's curiosity got the better of him.

"Who did you say you are?" he growled.

"Charles Newton, sir."

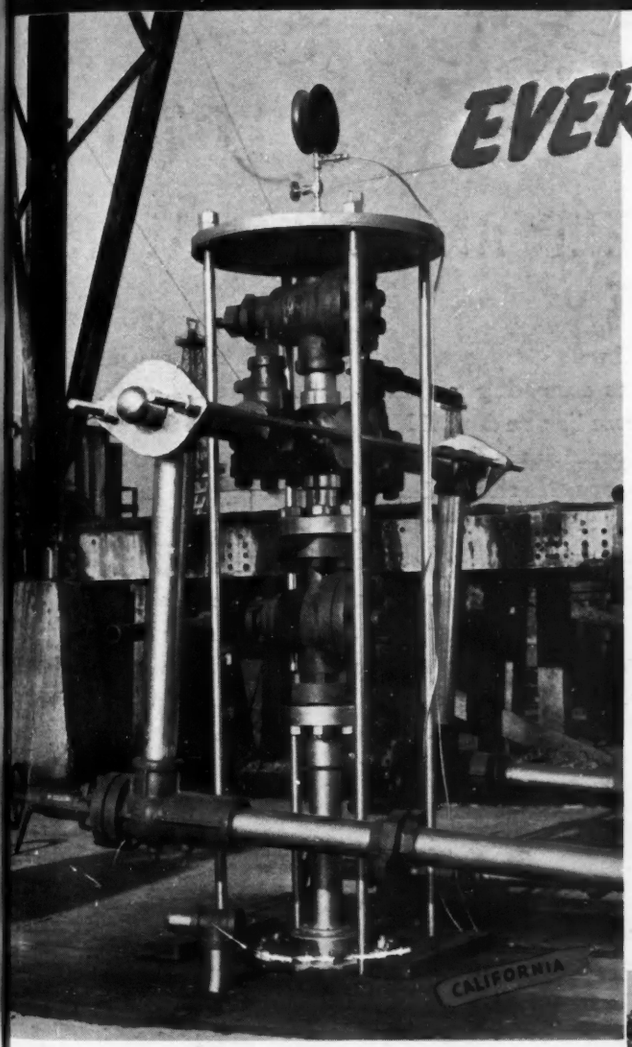
"What! You're not Tom Newton's son?"

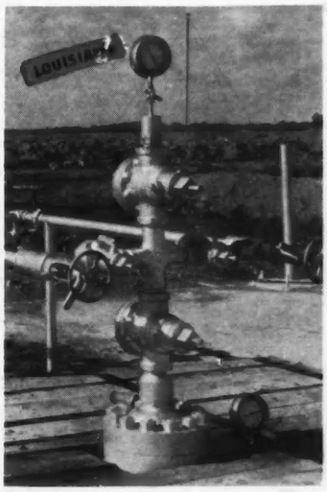
"Yes, sir."

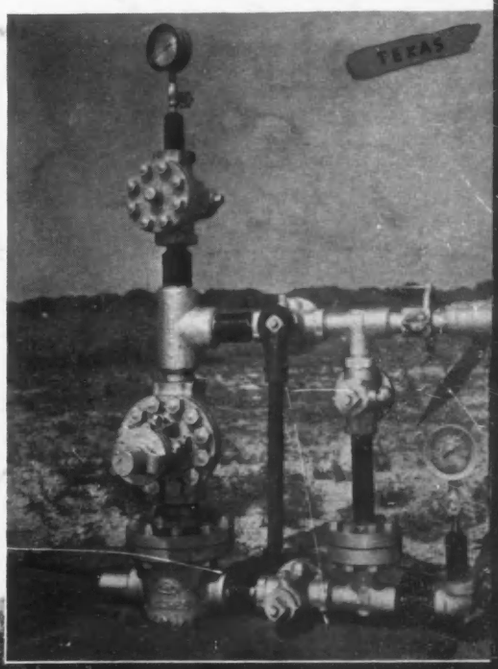
"Well, well," said Mr. Browne, softly, "it may rain. It may rain."

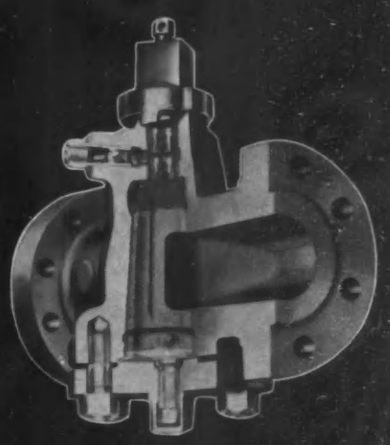
EVERYTHING'S Under Control!

WITH NORDSTROM
LUBRICATED VALVES









HYPRESEAL TYPE

One of the outstanding advances in Christmas tree engineering is the widespread adoption of Nordstrom Valves. Regardless of the type selected, Nordstroms are most compact, permit instant closure and provide the closest approach to indestructible construction. Numerous major companies have standardized upon these valves for Christmas tree services. Nordstrom Valves are naturally adapted to handling highly erosive fluids. When the valve is in open position no portion of the contact faces of the valve are exposed to the cutting action of the material flowing through the line.

TEST PRESSURES TO 10,000 LBS.

MERCO NORDSTROM VALVE CO.

A Subsidiary of PITTSBURGH EQUITABLE METER CO.

WORLD'S LARGEST MANUFACTURERS OF LUBRICATED PLUG VALVES: GASOLINE, OIL AND GREASE METERS

Main Offices: 400 Lexington Ave., PITTSBURGH, PENNA.

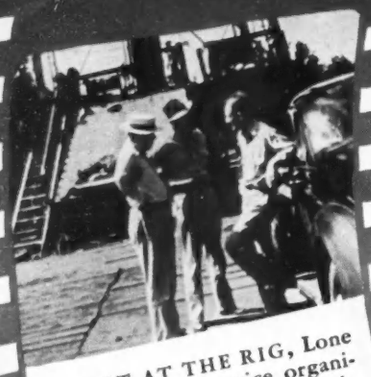
Branches: New York City, Buffalo, Philadelphia, Columbia, Memphis, Chicago, Kansas City, Des Moines, Tulsa, Houston, Los Angeles, Oakland. Canadian Licensees: Peacock Bros., Ltd., Montreal. European Licensees: Audley Engineering Co., Ltd., Newport, Shropshire, England.

CEMENTS FOR OIL INDUSTRY SERVICE

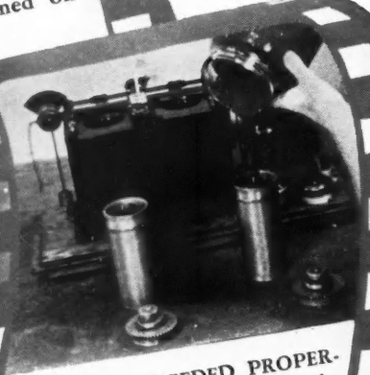
—BACKED BY

CONTINUING RESEARCH

IN THE FIELD AND LABORATORY

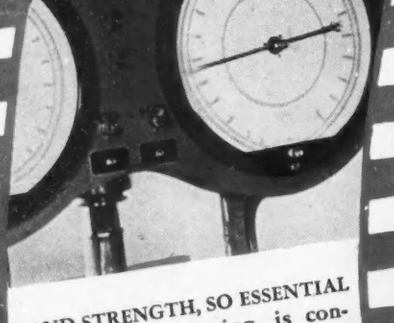


RIGHT AT THE RIG, Lone Star's oil-field service organization studies cementing problems—to keep the men at the mill constantly informed on oil-field requirements.



TESTS FOR NEEDED PROPERTIES and qualities—such as length and ease of pumpability at high temperatures—are part of daily routine.

NEAT-CEMENT TEST SPECIMENS are cured at 140, 170 and 200° F., to approximate the various conditions encountered in oil-well service—



AND STRENGTH, SO ESSENTIAL in oil-well cementing, is constantly checked. Work like this goes on all the time—we call it "keeping pace with progress."

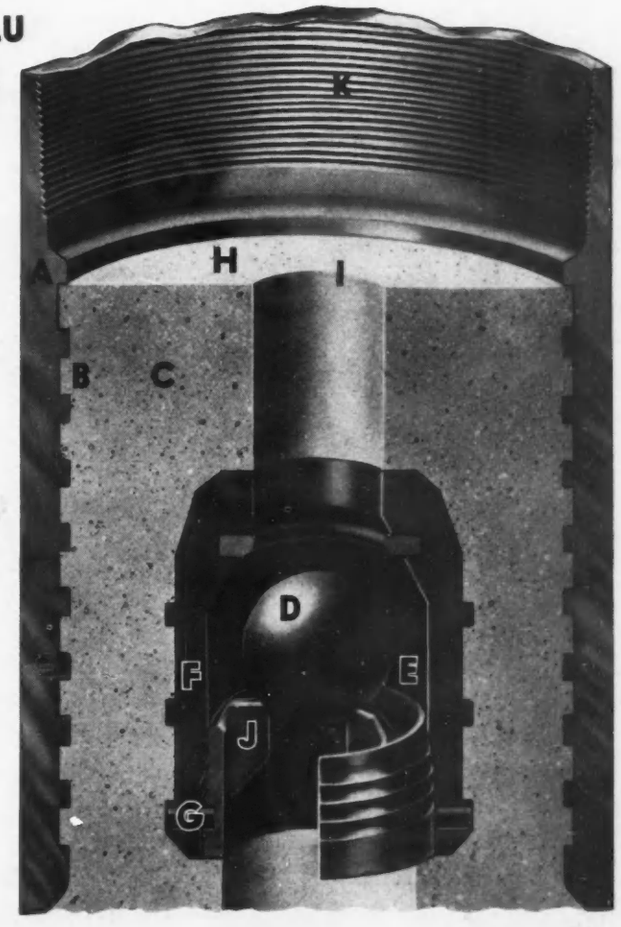
Day in and day out, Lone Star's oil-field organization studies cementing problems right at the rig, to keep an accurate line on the Oil Man's requirements. Close contact with problems in the field enables us to make cements with the properties and qualities needed to meet changing conditions of oil-industry service.

That is why 'Starcor' and 'Incor' deserve to be called the Oil Man's Cements—because they are made to measure for today's oil-industry needs. Use 'Starcor' for deep wells, greater length and ease of pumpability at high temperatures. Use 'Incor' for wells of moderate depth—earlier drill-out, wells on production quicker. Insist on 'Starcor'* or 'Incor'*—it'll pay you well. *Reg. U. S. Pat. Off.

LONE STAR
CEMENT CORPORATION

DALLAS: Santa Fe Building . . . . HOUSTON: Shell Building

THE MAINSPRING OF ALL BAKER REGULAR and BAKBLU FLOATING UNITS is this EFFICIENT BASIC CONSTRUCTION



(A) Seamless Steel Casing Shoe or Collar.

(B) Grooves securely anchor Concrete Plug in Shoe or Collar.

(C) Baker-Formula Concrete assures ample strength and easy drillability — no metal to drill out.

(D) BALL-TYPE Valve — a positive acting Back-Pressure Valve that seats instantly against narrow, tough rubber ring (backed by Bakelite and concrete).

(E) Correctly designed, streamlined fluid passageways. Ample for any present fluid capacities.

(F) Bakelite Valve Cage — set on end to present minimum cross-sectional area to drilling bit. Like the concrete plug, it is quickly and easily drilled up and circulated out of the hole.

(G) Bakelite Dowels lock Valve Assembly securely in place.

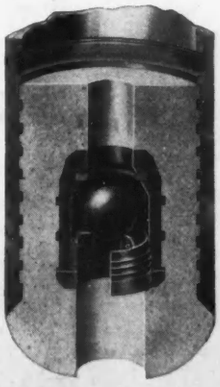
(H) Flat top — minimizes crushing stresses when cementing plug is pumped against concrete plug.

(I) Oval orifice through concrete plug minimizes any possibility of plugging passageway through Shoe or Collar.

(J) Bakelite Valve Stop moulded as one piece. Heavy fillets provide necessary strength and streamlining reduces normal cutting action of fluid.

(K) Shoes and Collars are furnished with threaded connections to meet all specifications of casing on which they are to run.

It is a Perfectly Balanced Combination of the Above Basic Construction Features That Results in the Safe, Efficient Operation Afforded by Baker Cement Guiding, Floating and Cementing Equipment Units.



BAKER (REGULAR AND BAKBLU) CEMENT FLOAT SHOE

BAKER (REGULAR AND BAKBLU) CEMENT WASH-DOWN WHIRLER FLOAT SHOE

BAKER (REGULAR AND BAKBLU) CEMENT FLOAT COLLAR

BAKER DUPLEX CEMENT WASH-DOWN WHIRLER FLOAT SHOE

FOR COMPLETE DETAILS, SEE PAGES 217 TO 234 OF THE 1940 COMPOSITE CATALOG

BAKER OIL TOOLS, INC.

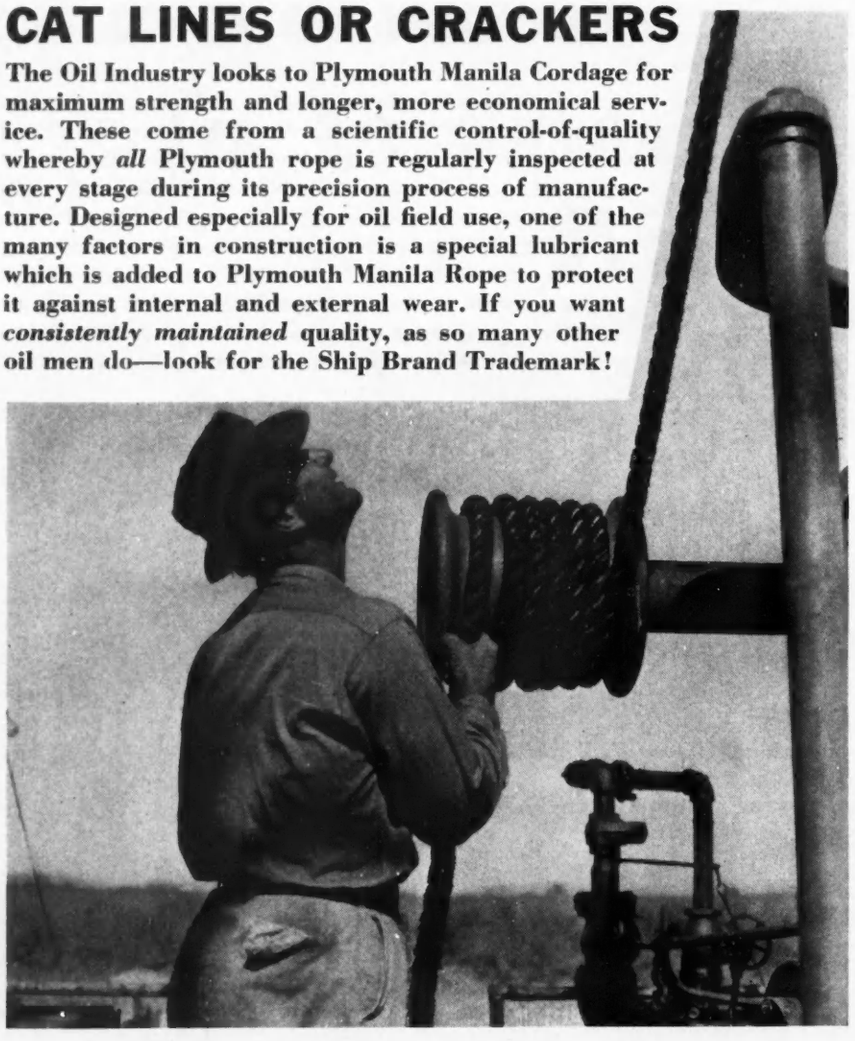
P.O. Box 127, Vernon Station, Los Angeles, Calif.
P.O. Box 3048, Houston, Texas
19 Rector St., New York City

Branches: Coalinga, Taft, Bakerfield, Calif.; Casper, Wyo.; St. Louis, Mo.; Tulsa, Oklahoma City, Okla.; Odessa, Kilgore, Texas; Olney, Effingham, Ill.; Evansville, Ind.

BAKER CEMENT GUIDING, FLOATING AND CEMENTING EQUIPMENT

CAT LINES OR CRACKERS

The Oil Industry looks to Plymouth Manila Cordage for maximum strength and longer, more economical service. These come from a scientific control-of-quality whereby *all* Plymouth rope is regularly inspected at every stage during its precision process of manufacture. Designed especially for oil field use, one of the many factors in construction is a special lubricant which is added to Plymouth Manila Rope to protect it against internal and external wear. If you want *consistently maintained* quality, as so many other oil men do—look for the Ship Brand Trademark!



PLYMOUTH MANILA

- Drilling Cables
- Bull Ropes
- Torpedo Line
- Crackers
- Cat Line
- Spinning Lines

PLYMOUTH CORDAGE COMPANY
NORTH PLYMOUTH, MASSACHUSETTS
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PLYMOUTH
The Rope you can Trust

OIL BOOKS

The knowledge gained through years of work and study by some of the most capable men in the oil industry is set down in the various oil books published and sold by the Gulf Publishing Company. Catalog of these books furnished upon request.

THE GULF PUBLISHING COMPANY
P. O. BOX 2811 **HOUSTON, TEXAS**

LOOKING AHEAD

WITH THE EDITOR

A Lease Is Not Always Gone When the Wells Get Weak.

OBVIOUSLY, the first step in reconditioning a lease that is nearing depletion, is to determine if enough oil is left in the reservoir to warrant the effort and expense. This investigation also will determine how extensive the rehabilitation should be to remain within the bounds of economic reason. Measures that tend to retard the rate of depletion of a property increases its earnings, but the cost of reconditioning and subsequent operation must not overbalance the added revenue obtained.

When wells have declined to non-profit status because of depreciation of equipment and clogging of productive formation at the bottom of the hole, cleaning out the well and installation of efficient equipment can convert a mediocre property into a profitable one. This provided the reservoir has not been exhausted.

A case much to the point is detailed in an account, soon to be printed in these pages, of two leases in Oklahoma. The article emphasizes that most profit is to be had in doing thoroughly what needs to be done in reconditioning.

Accompanying the article will be graphs showing substantial increases in oil production. Admiting that the two cases in question may involve exceptional situations, it does make it clear that all leases that are approaching exhaustion are worthy of a thorough diagnosis before their senility is accepted as beyond a shot that will restore potency.

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